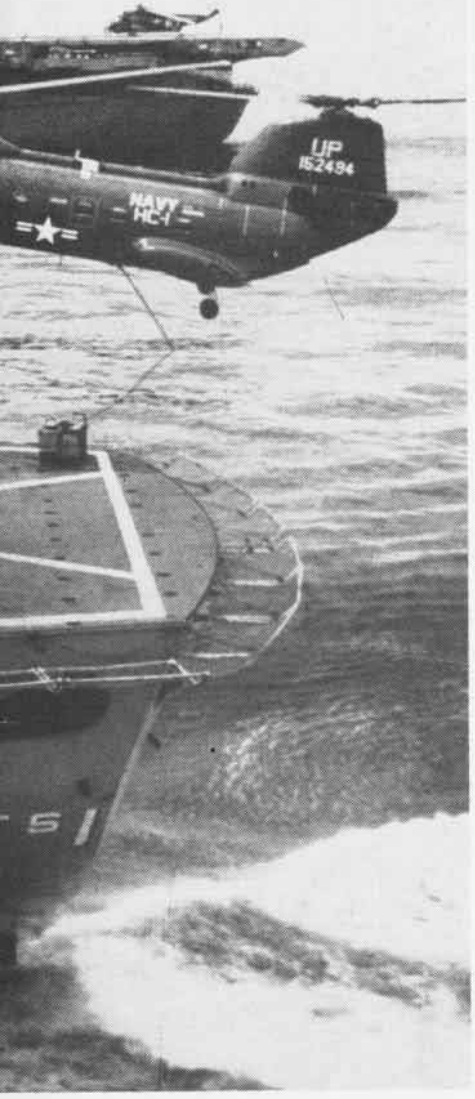
NAVAL AVIATION NEWS

48th Year of Publication

JANUARY 1967

THE DISAPPEARING HIGHLINE

A quiet revolution has been taking place in the Navy's ship support methods. New multi-purpose service ships operating with helicopter delivery systems now provision our fighting ships with the aplomb of a housewife dropping goodies into a supermarket basket. Soon there will appear a single-stop replenishment oiler. Quicker deliveries at higher speeds mean better-supplied Navy men will have more time for a job that has to be done.



■ COVERS

The picture of an A-4 approaching the USS Coral Sea in the Tonkin Gulf was photographed by PHAN V. C. Engstrom. . . . The picture of a seaman on the back cover was one of a series of photos taken by PHI Jean Cote and JOC Robert Moeser.

NAVAL AVIATION NEWS

FORTY-NINTH YEAR OF PUBLICATION JANUARY 1967

■ IN THIS ISSUE

■ THE STAFF

Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35

Published monthly by Chief of Naval Operations and the Naval Air Systems Command to disseminate data on aircraft training and operations, space technology, missile, rocket and other ordnance developments, aeronautical safety, aircraft design, power plants, aircraft recognition, technical maintenance and overhaul procedures. Send mail to Naval Aviation News, Op-05AS, Navy Department, Washington, D.C. 20360, located at 4703 Munitions Bldg.; telephone Oxford 62252 or 61755. Annual subscription rate is $2.50 check or money order ($1.00 additional for foreign mailing) made payable and sent to Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Single copy is $.25.

NAVAL AVIATION NEWS

Marine Pilot is Honored

Receives 5th Cunningham Award

Lieutenant Colonel Charles H. Ludden received the fifth annual Alfred A. Cunningham Award as "Marine Aviator of the Year" at the reunion of the First Marine Aviation Force Veterans Association which met in Oklahoma City, November 3-6, 1966.

He was selected because of his outstanding service in Vietnamese waters as the C.O. of VMF (AW)-212 and as acting commander of Carrier Air Wing 16, aboard the USS *Oriskany* (CVA-34).

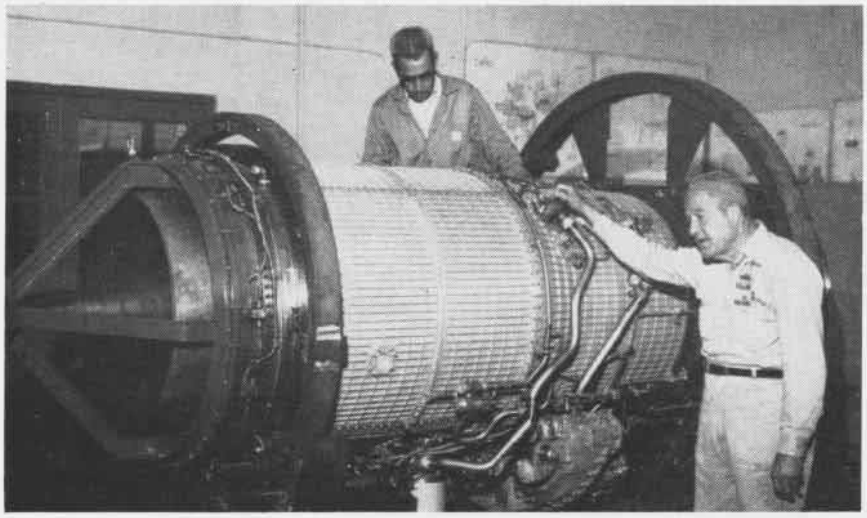
While commanding the first Marine jet squadron to be deployed aboard an attack carrier in combat since the Korean War, Col. Ludden logged more than 100 of the 1,500 missions his squadron flew. During this period, he won his third DFC, his ninth through 16th Air Medals, the Navy Commendation Medal and the Purple Heart.

Although VMF (AW)-212 is basically a fighter squadron equipped with *Crusaders,* it was also assigned attack missions in Vietnam. Under Col. Ludden's command, the squadron pioneered ordnance delivery tactics with the F-8.

Colonel Ludden won his third DFC and the Purple Heart while leading a strafing attack against enemy positions in North Vietnam in September 1965. Although he was severely wounded and his aircraft was badly damaged, he managed to return safely to attack carrier *Oriskany.*

About the same time, he became the first Marine officer to lead a carrier air wing in combat, when the commander of CVW-16, Commander James B. Stockdale, failed to return from a mission. The air wing consisted of four Navy squadrons, one Marine squadron plus detachments.

Colonel Ludden now serves as Assistant Operations Officer on the staff of Headquarters, Fleet Marine Force, Pacific, in Honolulu.



ANOTHER FIRST *was recorded at Overhaul and Repair Department, NAS Norfolk, when it was selected as the single overhaul depot for the Navy's first turbofan engine, the TF30-P6. The engine, which is to be used in the A-7A Corsair II, will become a major part of O&R's workload as the volume increases. In the picture, S. I. Franklin (front) and J. T. Bedsole are shown with the new engine, delivered to Norfolk by Ling-Temco-Vought.*

Carrier Trials for the A-7A

Operates from America (CVA-66)

Aboard the USS *America* (CVA-66), the newest jet attack airplane, the A-7A *Corsair II,* was introduced to carrier operations. The long-range attack airplane received its first catapult launch and flight-deck arrested landing as the giant flattop conducted carrier flight qualification exercises off the Virginia Capes.

The A-7A performed its first carrier flight operations as part of its test program under the supervision of the Board of Inspection and Survey and the Carrier Suitability Branch, NATC PATUXENT RIVER, Md. The 17,000-pound jet, capable of speed in excess of 600 mph, was piloted by LCdr. Fred Hueber, an NATC test pilot. He reported, "No difficulty was anticipated; no difficulty was encountered. The launch was a complete success."

When delivered for squadron use, the A-7A will supplement the A-4 *Skyhawks,* now serving in Vietnam, and eventually replace them.

Medics Visit Pensacola

Tour the Naval Medical Center

Eight military medical officers, representing Thailand, Korea, Republic of China, Italy, Germany, Vietnam and Republic of the Philippines, participated in a four-day orientation session at the Naval Aerospace Center at Pensacola near the end of November.

The doctors are attending a

NAVAL SUPPLY *Officers from major air commands and aviation activities throughout the world assembled a few weeks ago at the Navy's Aviation Supply Office (ASO) in Philadelphia. Over 70 officers met for the 21st annual Naval Supply Officers' Conference. Of particular concern this year were the needs of Naval Aviation units operating in SE Asia, a topic of prime interest to Rear Admiral H. J. Goldberg, SC, Commander, NSSC; Rear Admiral Robert L. Townsend, Commander, NASC, and Rear Admiral H. J. P. Foley, Jr., Commanding Officer, ASO. Brigadier General John D. Hinds, USA, Defense Industrial Supply Center, was an observer.*

course in U.S. naval medicine for foreign officers at the Naval Medical School at Bethesda, Md. The Pensacola trip was part of their training.

During their stay in Pensacola, the officers heard briefings and toured the medical facilities of the NAS, the Naval Hospital, the Naval Aerospace Medical Institute and the USS *Lexington*.

The officers were entertained at the quarters of Rear Admiral and Mrs. H. H. Eighmy and at dinner at the Mustin Beach Officers' Club.

An All-Service Transponder

Geared for 70,000-foot Altitudes

A lightweight IFF transponder capable of performing at altitudes up to 70,000 feet and temperatures as high as 95° C. without external cooling has been developed at the Naval Research Laboratory. The Department of Defense has selected the new device for universal use in military aircraft of all services. The transponder's design promises multimillion-dollar savings over other transponders.

Through a coded signal used to interrogate an aircraft, the transponder provides military identification and air traffic control as well as the altitude transmission functions required to fly the civil airways.

Its small size—approximately 350 cubic inches — and light weight — less than 15 pounds including the mount—have been achieved by unique design and through the use of solid state electronics on plug-in cards. The hermetically sealed case is designed for die casting and the modules are mounted directly on the case, thus reducing cost by eliminating the need for any chassis.

RHODES WITH HIS TRANSPONDER

Mechanical rigidity of design permits the transponder to be bolted directly to the airframe of a high-speed aircraft without shock mounts.

A key feature of the transponder, according to Laddie Rhodes of NRL's Security Systems and Aviation Branch, who conceived the design and directed its development, is ease of serviceability. Each major function is contained in a module (printed card) which can be replaced or interchanged without adjustment and each function is provided with test points to allow rapid fault detection.

For more extensive repair, a technician can remove a malfunctioning transponder from the aircraft, determine the trouble, make an adjustment and replace the transponder in the aircraft in 30 minutes. Average service time on transponders now in use is two to three hours.

NRL predicts that the transponder will have a minimum mean time of 500 hours between failures, far longer than those now in use.

GRAMPAW PETTIBONE

Hacked Hawk

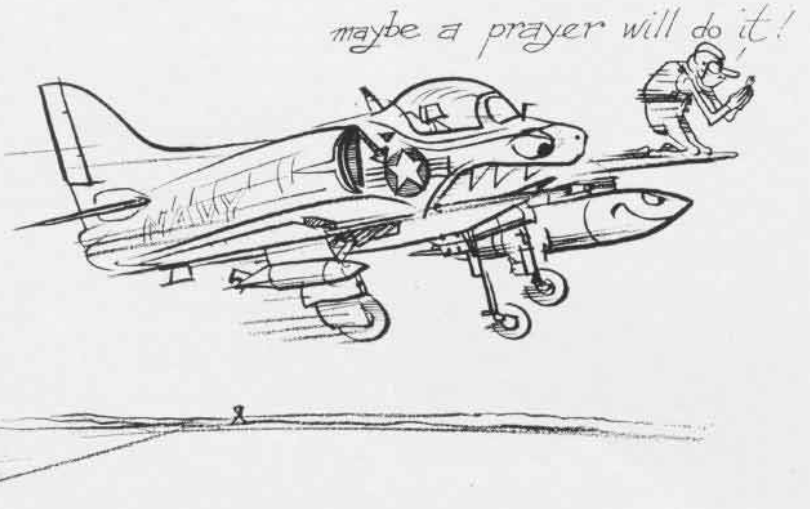
Thoroughly prepared and briefed for a scheduled two-hour, low-level navigation flight, the two A-4B weekend drivers became airborne at 0915. After one hour of uneventful flight, the leader noted the failure of his port wing drop tank to transfer. He decided to terminate the flight immediately and return to homeplate. En route, he performed a slow flight check of the aircraft and discovered that, with a full left drop tank, he was able to fly the machine with an on-speed angle-of-attack indication by utilizing only half of the available aileron trim.

Checking in with the tower, the *Skyhawk* driver requested and received clearance for a straight-in approach to runway 17. He was further advised that the surface wind was 240 degrees at 12 knots. Fuel state at this time was 1,200 pounds internal and between 1,200 and 1,500 pounds in the port drop tank. The approach was normal except for a slightly steep descent to the final glide slope made necessary by the presence of another aircraft on practice GCA. Because of this the pilot was not aware of the

amount of crab required to compensate for the crosswind.

At approximately 200 feet after touchdown, the aircraft entered an uncontrollable port swerve and proceeded off the runway to a mat area, then on to an open grass area for a distance of some 2,000 feet. With this development, the anxious driver elected to apply full throttle and attempt to get airborne for another try. As the *Skyhawk* accelerated to flying speed, the right main mount struck a mound of dirt. The strut sheared and forced the gear aft into the flap so that it separated from the aircraft. Nevertheless, the plane continued ahead for approximately 100 feet and luckily managed to get airborne.

This time the pilot climbed out over a large lake and jettisoned both drop tanks. He then returned and requested a Morest landing on runway 27. When the gear was ready, he commenced a full-flap approach, unaware that the right flap had long since departed the aircraft. Touchdown was effected at 125 knots, 100 feet short of the arresting gear and on the centerline. The right wing dropped but he caught it and was able to hold wings level with aileron and power. Engagement was 50-60 feet right of centerline, and the machine came to rest on the starboard wing tip, port main and nose gears. After shutting the engine down, the uninjured pilot stepped clear.



Grampaw Pettibone says:

Jumpin' Jehosophat! This young fella could have saved himself a lot of grief by readin' page 24 of the NATOPS Pocket Check List and just using a little common sense. Maximum asymmetrical load for landing and takeoff is 1,200 pounds in this *Hawk* and everybody else knows you find it a lot easier to put the heavy wing into the crosswind.

The price of that tank is around $1,800 and the cost to repair Charlie damage is approximately $18,000. Simple arithmetic shows it's a lot better to use standardized procedures than to rely on luck and superstition.

ILLUSTRATED BY Oplom

Pro Sans Luck

While cruising at 7,000 feet, the port engine of the SP-2E commenced backfiring. The pilot reduced power and the engine smoothed out. The engine analyzer, however, indicated that number one and two cylinders were not firing on the left magneto. The PPC increased manifold pressure and the engine began backfiring again. A small amount of oil was seen coming from the inboard cowl flap and the PPC immediately secured the engine. The shutdown was normal in all respects, and further inspection gave no evidence of fire. With the situation temporarily squared away, the PPC elected to continue on to his destination which was the nearest military field. The control center was informed and a descent to 6,000 feet was approved.

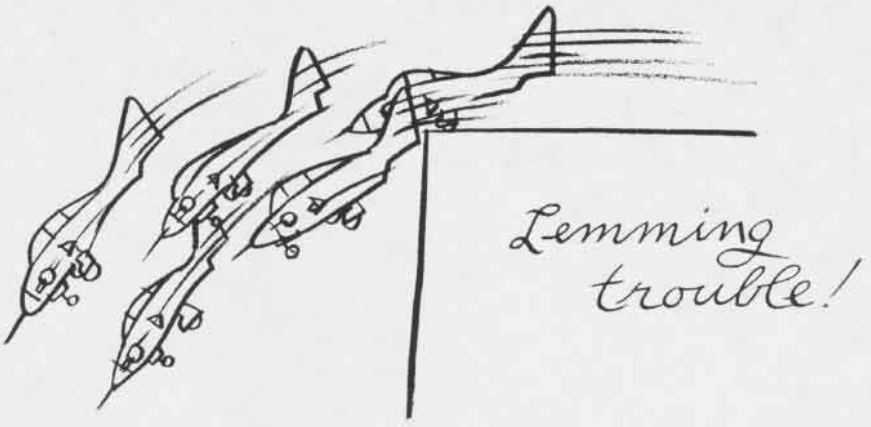
About five minutes later, smoke was observed coming from the port engine. An emergency was declared and the pilot was given a vector to a nearby civilian airport. The crew was directed to make preparations for bailing out as the fire increased in intensity. The center was informed it would be necessary to land immediately or the crew would be forced to bail out.

The center vectored the *Neptune* to a small private airport directly below and a single engine landing was attempted on a 3,300-foot runway. The PPC brought the P-2 to a complete stop 500 feet off the end of the runway with no apparent damage incurred on landing; all hands exited without injury. The airport fire jeep arrived within two minutes, but did not have sufficient equipment to extinguish the fire. Before the city fire trucks could reach the scene, the aircraft was completely engulfed in flames.

Grampaw Pettibone says:

Too bad! The operation was a success but the patient died. This is an outstanding testimonial to back up my insistence on using military fields as much as possible. This plane crew was well organized and handled the emergency in a professional manner, but was unfortunate enough not to be close to a military field which could have fought the fire and saved the plane. (The culprit causing this mishap was failure of the exhaust valve on the number two cylinder.)

It gets Ole Gramps right in the pocketbook to lose one of these machines, but it sure makes me proud to add these boys to the "Ole Pro list."



Short Changed

Concluding an RON or two on the Pacific Coast, the two seasoned instructors headed for their *Cougar* at 0530 with hopes of getting back to the old homestead in Texas at a decent hour. After preflighting, strapping in and copying the clearance, the pilots discovered that the engine would not turn over.

While maintenance replaced the starter, the duo ate breakfast and tried again at 1030 to get airborne. This time the engine turned up, but the RPM fluctuation was excessive and the plane was returned to maintenance. The drivers, a little discouraged, departed for the club to eat lunch.

At 1846, with all systems indicating go, they became airborne and flew uneventfully to a civilian airport for fuel. They filed for destination at 2050 and, following a normal preflight, climbed aboard, turned up and taxied to a designated area to "burn down" excess fuel. This step was considered necessary because of runway temperature and the reputation of the plane for being "sluggish." After completing the "burndown," they went over the check list for a flaps-up takeoff with the radio magnetic indicator in the free position.

The tower issued positive directions to follow a Cessna over to what appeared to be the apex of runway 35 and 04. In reply to their request for takeoff clearance, the tower directed, "Switch to Departure Control, cleared for immediate takeoff runway 4 landing traffic." (Runway lights on all runways were turned on.)

Takeoff roll commenced with the rear seat man instructed to call off distance markers and air speed. No distance markers were observed. At an estimated 5,000 feet of roll, the tower called on guard channel to advise them they were on a short runway with little distance remaining. (Total runway length was 7,000 feet.) At this same instant, the front seat driver saw what appeared to be the end of the runway and despite all effort to abort, the *Cougar* passed the end of the runway, proceeded through a fence, and came to rest about 200 yards out in an open field. The two aviators, none the worse for wear, jettisoned the canopy and got out.

Grampaw Pettibone says:

Egads! Ole Gramps can't win for losing. After trying every trick in the book to get those fuel stretchers to stop and get pumped up, these two just couldn't stand prosperity and booby-trapped themselves.

I ain't saying it wasn't easy to get confused with all the runway lights on, but you just can't expect as much individual attention from a civilian tower operator as you get on a military field. In spite of the extenuating circumstances, the driver in charge is responsible and a *little* pilot error is like a *little* smell of garlic—there ain't no such thing.

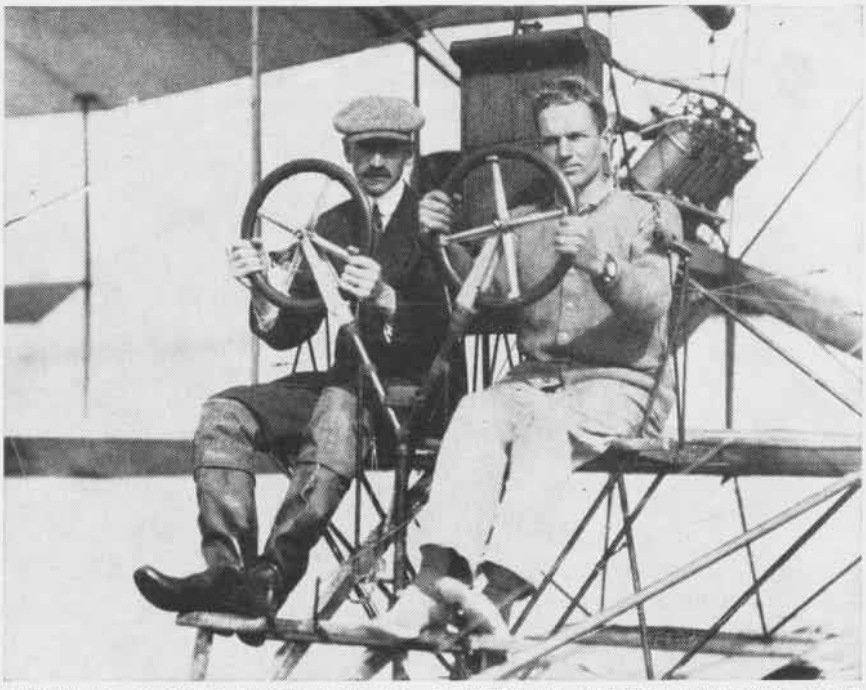
TOWERS ENTERS HALL OF FAME

On December 15, 1966, Admiral John H. Towers, Naval Aviator No. 3 and a pioneer of the air, was posthumously honored by enshrinement in the National Aviation Hall of Fame at Dayton, Ohio.

The presentation of his long record of accomplishment was made by Rear Admiral William I. Martin, ACNO (Air). An honored guest, Mrs. Towers, the admiral's widow, received a plaque commemorating the occasion.

There were five other 1966 entrants into the Aviation Hall of Fame in ceremonies which honored the Wright Brothers' first flight on December 17, 1903: Major General William C. Mitchell, USA (1879-1936), stormy protagonist of air power; Robert H. Goddard (1882-1945), "Father of the Rocket"; William E. Boeing (1882-1956) and Glenn L. Martin (1886-1955), aircraft designers and manufacturers; and Lincoln Beachey (1887-1915), America's first aerial stunt pilot.

Admiral Towers now joins others of Naval Aviation already in the Hall of Fame: Commander Theodore G. Ellyson, USN (deceased), Naval Aviator No. 1; Eugene Burton Ely (deceased), the first pilot to land an airplane on a ship and take off from it; Lieutenant Colonel Alfred A. Cunningham, USMC (deceased), Naval Aviator No. 5 and Marine Corps Aviator No. 1; and Rear Admiral Albert C. Read, USN (Ret.), who commanded the first airplane to complete a crossing of the Atlantic Ocean by air.



GLENN H. CURTISS (LEFT) AND LT. TOWERS IN CURTISS AIRCRAFT, 1911

Shortly after he graduated from the U.S. Naval Academy in 1906, Ens. Towers became one of the young officers in the great White Fleet that circumnavigated the globe in 1907-1908.

In his first years of duty, he was a gunnery officer, but on June 27, 1911, he changed course radically for on that day, as a lieutenant (junior grade), he reported for instruction at the Curtiss School, Hammondsport, N.Y. From that day on, his was a career both long and distinguished that would reach heights never before attained by an aviator in the U.S. Navy.

His career would encompass the accomplishment of many a first in aviation. It would rise above the stigma attached in those days to a crusading exponent of Naval Aviation. It would include the skillful direction of a fast-growing element of naval strength in time of war and the leadership of the full-grown arm of naval air power in WW II. It would extend beyond the limits of aviation to include command of the great Pacific Fleet and the head chair at the table of naval advisers to the Secretary of the Navy.

From the first, he carved his individual niche in a field where all were pioneers. He led the first aviation unit to operate with the Fleet in 1913, took charge of training when the flight school was first set up at Pensacola in 1914 and commanded an aviation unit sent to Tampico, Mexico, to lend aviation support to the American occupation of Veracruz in 1914.

When WW I broke out in Europe, Towers went to London to learn firsthand the requirements for air power under combat conditions. Upon his return in 1916, he became the senior aviator in the Office of the Chief of Naval Operations and assumed duties which, with his later additional duty as Supervisor of the Naval Reserve Flying Corps, gave him a leading role in the expansion of Naval Aviation.

The urgent need for patrol and scouting planes during WW I and the shortage of shipping space led the Navy to design aircraft capable of making the trans-Atlantic passage under their own power. Although the Armistice arrived before the planes were ready, preparations went forward for a pioneer crossing. To complete these planes, to assemble the necessary material and to gather the personnel constituted Towers' assignment.

On May 2, 1919, all was ready. In an unprecedented ceremony, Commander Towers placed Seaplane Division One in commission. Seven days later, he gave the command to take off from NAS Rockaway, New York, on the first leg of the trans-Atlantic flight. Towers' flagship was the NC-3 with Commander H. C. Richardson as pilot. LCdrs. P. N. L. Bellinger and Marc

A. Mitscher were in the NC-1 while LCdr. A. C. Read and 1st Lt. E. F. Stone of the Coast Guard were in the NC-4.

During the flight from Trepassey, Newfoundland, the NC-1 and NC-3 landed near the Azores to determine their positions, but heavy seas prevented their taking off again. The NC-3 was damaged, but the crew managed to keep it afloat for 52 hours. Battling a heavy storm, they sailed the plane 200 miles to Ponta Delgada, a feat officially called "a triumphant demonstration of courage and expert seamanship." Although Commander Towers was not in the plane (the NC-4) that completed the crossing, his leadership in the undertaking was recognized by the award of the Navy Cross.

Between the two World Wars, Towers served in a variety of posts. He was a Senior Aide to the Commander of the Air Detachment in the Pacific Fleet, served as commanding officer of an aircraft tender and became executive officer of NAS PENSACOLA in 1921. Two years later, he reported as Assistant Naval Attache to the American Embassies at London, Paris, Rome and the Hague, and in April 1924, he was assigned additional duty in Berlin. He returned to the United States in September 1925 and was assigned to the Bureau of Aeronautics (BUAER). In 1926, he became the executive officer of the first aircraft carrier in the Navy, the USS *Langley*, and on January 4, 1927, he assumed command of that ship.

In 1929, he headed the plans division of BUAER and in April 1929 became Assistant Chief of the Bureau. In this post he was appointed by the President a member of the National Advisory Committee for Aeronautics (NACA). Detached from the Bureau as a Captain in June 1931, he served for two years as Chief of Staff to Commander Aircraft Battle Force, and then reported for instruction to the Naval War College at Newport, R.I.

In June 1934, he took command of NAS SAN DIEGO at North Island.

Upon completing that tour, he reported as Chief of Staff to Commander Aircraft Battle Force and, on June 9, 1937, assumed command of the USS *Saratoga* (CV-3).

Captain Towers again became Assistant Chief of BUAER in July 1938 and stepped up to Chief of the Bureau with the rank of Rear Admiral June 1, 1939. He was the first of the early Naval Aviators to achieve both the office and the rank.

AS THE CHIEF of BUAER, he guided the course of Naval Aviation. The war in Europe and the unsettled nature of the world at large called for a rapid expansion of forces and nowhere was this expansion more necessary than in Naval Aviation. As the head of BUAER, Rear Admiral Towers was responsible for the production and procurement of all types of aircraft.

Furthermore, he was responsible for the pilot training program, for the expansion of the air base system required to support a larger force, for the construction of ships necessary to take aviation to sea, and for the expansion of the aircraft industry to provide the aircraft and munitions of war. Both quantity and quality were his goals. The programs put into effect and the plans devised under Admiral Towers' leadership set the course of naval air expansion and were the base from which aviation grew into the airborne giant of the Fleet.

In October 1942, he was promoted to the rank of Vice Admiral and assigned as Commander Air Force, Pacific Fleet. His command provided logistic support for all aviation units in the Pacific, including the Marines, and supervised their development, organization and training. In his capacity as ComAirPac, Admiral Towers was the chief aviation adviser of Admiral Nimitz, Commander in Chief, Pacific Fleet.

RADM. TOWERS AS BUAER CHIEF

In February 1944, he moved up to the post of Deputy Commander in Chief, Pacific Fleet and Pacific Ocean Areas. Though his duties were still largely logistical and administrative in nature, Admiral Towers had an active share in developing the over-all strategy that brought victory in the Pacific.

At the end of WW II, he relieved Vice Admiral John S. McCain as Commander Second Carrier Task Force, Pacific Fleet. On November 7, 1945, with the rank of Admiral, he became Commander in Chief, Pacific Fleet/Pacific Ocean Areas.

One year later, Admiral Towers returned to Washington to become Chairman of the General Board, a position traditionally reserved for the Navy's "elder statesmen." After directing this group of naval advisers to the Secretary of the Navy and having completed 45 years of service, he retired from active duty on December 1, 1947.

After his retirement, Admiral Towers remained active in aviation. He first accepted a position as Vice President of Pan American Airways and was later retained by that organization as a consultant. Late in 1953, he became President of the Flight Safety Foundation, a work he was actively directing at the time of his death, April 30, 1955, at the age of seventy.

His life spanned the history of aviation and his accomplishments are recorded in its pages. He was a leader among pioneers and an active crusader for Naval Aviation. His unceasing fight to establish for aviation its rightful place as an element of sea power did much to increase the striking power of the Fleet and to extend its capacity for controlling the seas.

Admiral Towers' place in Aviation's Hall of Fame is secure. His unfailing loyalty to the Navy and his many contributions to the art and science of aviation have carved his name deep among those of whom the Navy is proud. Of him it can be truly said, "He served his country well."

A VS-21 S-2 TRACKER LANDS ABOARD USS KEARSARGE AFTER COMPLETING AN ASW MISSION IN THE PACIFIC

'LOW-SLOW' IS VS-21'S WAY OF LIFE

By JOC John D. Burlage and JO1 Jim Teague

USS Kearsarge Photographs by PH2 Daniel R. Muken

THE GRUMMAN-BUILT, twin-engined S-2E *Tracker,* launched an hour ago from the ASW carrier USS *Kearsarge,* plods along at 140 mph a scant 100 feet above the smooth Pacific waters off the coast of the Philippine Islands.

Inside, four men assigned to Air Antisubmarine Squadron (VS) 21 go about the hot, cramped business of trying to track down an American submarine playing enemy today against an ASW task group.

For the *Tracker,* one of ten that bear VS-21's red lightning-bolt insignia, the five hours it will be aloft today are only a few of many it will fly as an airborne ASW platform for its two pilots and two aircrewmen.

The *Tracker* will never be called a glamorous airplane. Its ungainly appearance and 200-knot top speed guarantee it will never be mistaken for, say, an F-4 *Phantom II.* By the same token, however, it's equally guaranteed to strike a kind of fear in the bosom of an enemy submariner that no *Phantom* pilot can ever hope to equal.

UNIT INSIGNIA DEPICTS THE MISSION

VS-21's pilots like the *Tracker.* They're quick to point out that its speed is ideal for the "low-slow" capabilities they must have to do their work. They don't hesitate to emphasize that the sturdy little plane gives them the stability they need to do a kind of flying that is just as demanding in its way as a high-speed *Phantom.*

How demanding? Take flying above the water at 100 feet, for example. If an engine should give out unexpectedly, there's a good chance the *Tracker* and its crew would join the seaweed the fliers can see just below the surface. The fact that the ceiling is raised 300 feet during the many night hours VS-21 pilots are on missions helps not at all.

Reason for this kind of low-level

flying is simple. The job at hand is to hunt and kill submarines and, since their detection equipment is designed to search below their aircraft, VS-21 pilots stand a better chance of finding a deep-running sub if they fly close to the water.

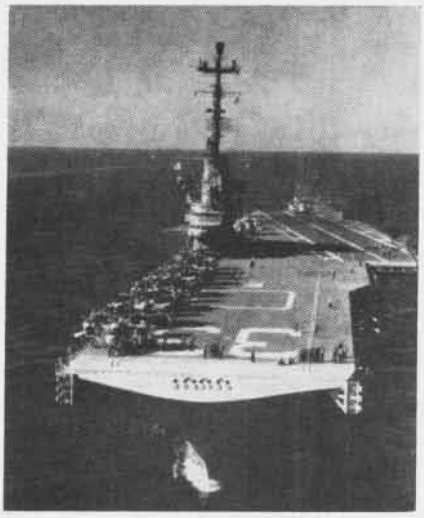
When they do locate a submarine, the kind of hair-raising aerobatics these pilots practice to maintain the contact are not for the faint-hearted. Constant, sharp turns are commonplace, as are deep dives and low passes.

These are the conditions under which VS-21 pilots regularly perform their ASW mission. They and their predecessors have been at this kind of work almost since the beginning of modern ASW and their squadron, one of the Navy's first such designated units, will soon celebrate its 17th anniversary as a VS outfit.

THE ORIGIN of VS-21 lies in the commissioning, on March 26, 1945, of Escort Carrier Group (CVEG) 41. CVEG-41 was redesignated CVEG-1 November 15, 1946, and CVEG-1 was in turn redesignated September 1, 1948—as Composite Squadron (VC) 21.

VC's had gone out of business in the immediate postwar period, but the designation was revived with the creation, among others, of VC-21. Soon, however, the letters were used by squadrons that had a variety of missions in addition to ASW —photography and heavy attack, for instance. A further breakdown was necessary.

It came, for VC-21, on April 23, 1950, when it was redesignated VS-21 and the present ASW squadron was "born." There had been VS



USS KEARSARGE IS VS-21'S 'BASE'

squadrons in WW II, but they were scouting units that had nothing to do with ASW. Now, flying the TBM *Avenger,* VS-21 pilots inherited the mission.

Their "hunter-killer" (HUK) capabilities soon gave way to another mission after they deployed during the Korean conflict. They departed from the ASW field long enough, during the 1950-51 winter retreat, to assist in the evacuation of wounded personnel from an airstrip near the Chosin reservoir.

They returned to their home base, NAS NORTH ISLAND, San Diego, and tried out a new aircraft, the Grumman AF *Guardian.* It was called the largest single-engine aircraft ever constructed, with a gross takeoff weight of more than 12 tons, and it was also known as the first carrier-based plane designed specifically for ASW.

Then, in December 1954, VS-21 received its first *Trackers.* Its pilots have been flying some version of that plane since, so they easily qualify as experts in the life and habits of the S-2. When they describe the *Tracker,* they talk mainly in superlatives.

"The *Tracker* is the ultimate in ASW aircraft," says Lt. Stephen A. Turner, a VS-21 pilot for more than two years. "It's sturdy and dependable, even if it is a little hard to handle."

"It drives like a Mack truck," another pilot injects without malice.

"It's designed to do a specific job," Lt. Turner resumes after the laughter subsides, "and it does the job efficiently. It also has an excellent safety record. I can't conceive a better platform for ASW gear than the S-2."

"Gear" is a somewhat loose description of a variety of equipment installed in the *Tracker* to accomplish the dual mission of finding an enemy sub and, if necessary, blowing it out of the water. The detection gear includes:

- MAD (Magnetic Anomaly Detector)—A device that picks up distortions in the earth's magnetic field caused by a submarine. With its detecting head on a 16-foot boom extended from the tail of the aircraft, its vertical range is almost 1,000 feet.
- SNIFFER (Submarine Detecting Set)—It detects exhaust fumes of snorkeling submarines by measuring changes in the concentration of ionized particles.
- ECM (Electronic Countermeasures)—Homes on electronic signals emanating from a sub.
- JULIE—A small sonobuoy that

AX3 SIMMONS INSPECTS AN S-2

PARACHUTE MANUAL IS CHECKED

ADR1 SHAW PREFLIGHTS TRACKER

employs explosive echo ranging. An explosive signal is reflected by a sub and relayed via the sonobuoy's radio transmitter.

- JEZEBEL—Also employs sonobuoys, but differs from JULIE in that it is passive and will only detect objects that are making noise.
- RADAR—Uses a pencil-point beam that picks up subs or other craft on the surface.
- VISUAL SENSORS—Simply put, the eyes of human observers; still one of the best methods of detecting and evaluating contacts.

Once the *Tracker* crew has pinpointed a submarine, weapons carried in the plane give it a high kill potential. Depth charges or torpedoes are loaded in the torpedo bay; various combinations of weapons can be released from the aircraft's external wing-mounted bomb rack and rocket launchers.

EVEN THOUGH the *Tracker* has been in the ASW business for more than ten years, VS-21's planes are practically new. The squadron's older S-2F's were replaced summer before last by the improved E version.

It would take a *Tracker* expert to tell the two apart at first glance. The S-2E is about 18 inches longer than the F's 42 feet, and the ECM gear that used to be housed in a dome above the cockpit has been moved inside the wingtips—an arrangement that reduces air drag.

The S-2E is a little roomier than the F, but, with all the equipment crammed into it, space is still limited. It does boast a new and better crew seat that tilts and adjusts to provide more leg room. Its most appreciated "creature comfort," however, is a ventilation system that forces cool air into crewmen's exposure suits through a hose.

Operational improvements include a tactical display plotting board in the pilots' compartment. Much like a tiny version of the transparent boards common to shipboard combat information centers, this visual display apparatus marks the position of the aircraft and the heading and positions of the target, sonobuoys and depth charges. It allows the copilot to keep information in front of him when he coordinates an attack.

VS-21 pilots are well prepared to man the *Tracker* and play their dangerous ASW game. In addition to the standard flight training common to all Navy pilots, potential VS fliers are assigned to a training outfit, for additional ASW work, before they report to a squadron. Once they join a unit such as VS-21, they spend hours in the copilot's seat before they take the helm of an aircraft for a full mission. Still more hours are put into practical flying—perhaps more than a year's worth—before they qualify as plane commanders.

Of the squadron's 33 officers, all but four are pilots. Most of them are assigned collateral duties to keep VS-21's three departments—Operations, Maintenance and Administration—working effectively.

"Collateral duties" is also an effective term for describing the work of the squadron's enlisted men. Most of them are in the aviation ratings and work primarily on the *Trackers* and their related equipment, but VS-21 also has its own yeomen, personnelmen, commissarymen, stewards, photographers and storekeepers.

FOR THE enlisted men, secondary assignments (which in no way indicate job priority) come when they volunteer for duty as aircrewmen—a job 35 of them have.

Besides their regular chores, which can keep them busy more than 12 hours a day at sea, they take on the additional task of operating much of the ASW equipment in the *Tracker* from the crew seats located behind the pilots.

Squadron aircrewmen train constantly to improve their skills. Along with work with the JULIE, JEZEBEL and other equipment comes schooling in such necessary subjects as survival, navigation, air intelligence, submarine and aircraft recognition and even current events.

AX1 Gerald A. Nave is the squadron's aircrew boss. He possesses a high regard for his charges.

"Sometimes these boys get off work at 1530, start flying at 1615 and don't get back until 2245," he says. "Then they work the next day, because their regular jobs still have to be done. Don't let anybody tell you they don't earn their flight pay."

Commenting on the work his men perform, Nave says: "Do they get bored staring at a needle for hours, hoping it will swing and indicate a submarine contact? It depends on the circumstances. Sure, it gets boring just searching with the MAD and ECM, but when we do find a sub and begin tracking it—and start dropping those sonobuoys—nobody gets bored. They're too darned busy.

"It can't be all that boring at any time; if it were, I wouldn't have such a long waiting list of persons who want the job."

Though he's primarily concerned with VS-21's in-flight operations, Nave is also a man who appreciates the work of his squadron's maintenance personnel:

"When we go on round-the-clock operations, the maintenance crews really go to town. We'll land aboard *Kearsarge* at two in the morning with something broken. The plane has to be fixed and ready to fly in seven hours. Somebody has to get out of his bunk to work on it. I've seen those guys go 48 hours without sleep when we were operating in the South China Sea."

VS-21 personnel place great emphasis on the value of teamwork at every level of their organization. The squadron's skipper, Commander R. D. Colvin, speaks of the relationship between pilots and their crews:

"We have nothing but visual search without our number three and four operators running the detection equipment. The pilots have to know they can trust their operators to give them correct readouts from their systems. Likewise, the crew must know how the pilots run their tactics before they can do an effective localization and tracking job.

[A description of the teamwork VS-21 pilots and crewmen practice follows on page 12. It takes the form of intercommunications among a *Tracker's* crew during a HUK mission.]

"It's sort of like the fingers on your hand. You'd have a tough time making a fist with them unless they all worked together."

SQUADRON'S AIRCREWMEN ARE THE PILOT'S EYES DURING ASW MISSION

Emphasizing that operations within VS-21 are handled through a team effort also points up the fact that the squadron is part of a team. Along with its sister squadron, VS-29, VS-21 is a unit of Carrier Air Group (CVSG) 53; the air group also includes an ASW helicopter squadron, an airborne early warning unit and a group of light attack aircraft.

ALTHOUGH administrative and command status within the air group varies—depending on whether its squadrons are operating from *Kearsarge* or from bases ashore—the biggest change that takes place, when VS-21 goes to sea, is in flying hours and operating conditions.

After the *Trackers* are loaded or flown aboard the carrier for an at-sea period off California or for a WestPac deployment, pilots and crews are launched from the ship for one of two reasons—training or round-the-clock flying.

In the former case, *Tracker* crews may practice any one of three classes of exercises: basic, intermediate or advanced. The first may include operating the S-2's equipment and finding a target, the second could mean a crew makes a run on a submarine and the third has squadron *Trackers* working with other aircraft or with destroyers in a coordinated effort.

Such flights are made for only one purpose. They get flight crews ready for situations that could mean round-the-clock flying. A prime example of a "situation" came in August 1964 when VS-21 and the other CVSG-53 squadrons were recalled to *Kearsarge* on short notice from a period ashore during a WestPac deployment.

Cause of the recall was the first Gulf of Tonkin crisis. With its air group aboard, *Kearsarge* and other units assigned to the HUK group steamed out of port, bound for 30 days in the South China Sea.

After the HUK group arrived on station, *Kearsarge* and the air group started 13 days of round-the-clock operations. When such operations are demanded, VS-21's flight method changes from the training schedule to what is called the three-wing concept. Five complete air crews are assigned to each wing; the C.O. heads one, and the other two are commanded by the squadron's X.O. and Ops officer.

Once the transition to three-wing flying is made, VS-21 pilots are launched in their *Trackers* about every 21 hours. The squadron can continue almost indefinitely on this basis, averaging more than 50 hours of flying during the day.

Regardless of the type of flying they happen to be practicing, however, *Tracker* pilots are fond of borrowing a phrase well-known to Naval Aviation and localizing it to their branch: "Antisubmarine warfare flying is hours and hours of long, hard, boring periods of flight interrupted only occasionally by moments of stark terror."

Once again, VS-21 has returned aboard *Kearsarge* to the waters off Vietnam, and it's a safe bet that squadron pilots and enlisted aircrewmen are earning their keep in their cramped *Trackers*—looking long and hard for submarines that, one day, may not be only "playing" at being the enemy.

THE SILVERSKATE STORY

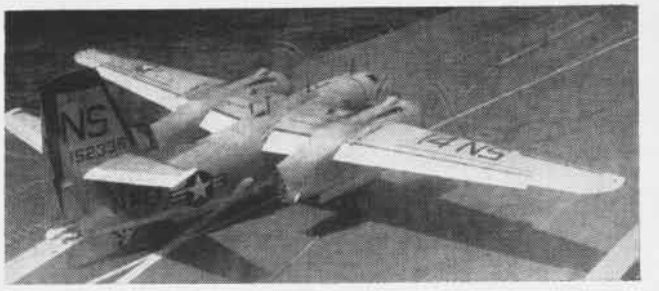
It takes realistic training in peacetime to successfully hunt submarines in wartime. ASW units assigned to the U.S. Seventh Fleet, including the carrier *Kearsarge* and her assigned squadrons, got intensive training recently during a four-day exercise named *Silverskate*.

Held in the eastern portion of the South China Sea, *Silverskate* gave everyone from admiral to seaman a chance to practice battle station assignments under simulated wartime conditions.

Three U.S. submarines—*Bonefish*, *Pomodon* and *Seadragon*—acted as hostile subs in sham battle with Task Group 70.4. Surface elements of the Royal Navy also participated.

On pages 20 and 21, Naval Aviation News presents a pictorial record of the exercise, excellently photographed by PH1 William M. Powers for ComNavPhil.

ON STATION IN A TRACKER WITH A VS-21 CREW



WHAT'S IT like to spend long hours in slow flight a scant 100 feet above the Pacific, searching for an elusive submarine that may be cruising just under the surface? The best way to find out is to "sit in" with the crew of a VS-21 S-2E *Tracker* that has been launched from the flight deck of the carrier *Kearsarge* on a training mission.

After being catapulted from the carrier, the *Tracker* is flown to its designated search area about 30 miles from the ship. Once on station, the pilot reports:

"Overseer, this is *Flintrock 21*. We have four souls on board, a full ASW load and 6½ hours of endurance. Our on-station time commences at 0700. Over."

"Roger, *Flintrock 21*. Begin your search pattern."

The *Tracker* settles into its designated search pattern. It might be a race-track configuration or possibly a figure-eight, depending on the wishes of the copilot. He also serves as tactical coordinator.

The pilot brings the aircraft down, close to the water. He and the copilot begin their visual search; at the same time, they keep an eye on the altimeter in front of them. It indicates 65 feet; the pilot eases the stick back, and the aircraft climbs to 100 feet.

The search continues.

In the crew's section, immediately behind the cockpit, two aircrewmen watch and listen intently.

Number three operator, seated on the left (looking forward), stares at his radarscope. His sliding window is closed, the darkness enabling him to concentrate on the soft glow of the sweeping radar beam.

His back begins to ache as the minutes of sitting in the same position turn into hours.

Across the foot-wide aisle, operator number four listens for the echo of his long-range JEZEBEL sonobuoy to tell him a submarine lies hidden below. He squirms a little in his rubberized survival suit, hopes the new position will erase the feeling of mummification. He reaches down and pulls a lever, allowing fresh air to ooze into his suit.

"How long have we been on station?" he asks.

HIS PARTNER starts to answer, stops in mid-sentence. "Pilot—number three. We have a radar contact, bearing 195, range three miles."

"Roger, number three. Coming right to 195."

The *Tracker* wheels and heads for the contact. The radar operator feeds range and bearing readings to the copilot every few seconds.

"Number three, extend MAD boom. Number four, stand by to monitor sonobuoys." The copilot's orders crackle through the intercom.

Number three pushes a button; the *Tracker's* "stinger" extends out the tail of the aircraft. "MAD boom indicated out," he reports.

Number four reports his JULIE system ready to go. The contact suddenly begins maneuvers that tell the crewmen this is no whale or school of fish. The moves are steady, controlled. A submarine.

"MADMAN, marked!" number three shouts as his MAD needle swoops across the page like a berserk cardiograph. A quick move by the operator, and a smoke marker drops.

The copilot indicates it's time for JULIE.

"Stand by to monitor buoy number five."

Pilot: "Dropping a deep charge. Now! Now! Now!"

"Roger, buoy five and a deep." The number four operator begins tracking the sub via the sonobuoy.

"Range on buoy five, 1300 yards."

The copilot answers, "Time—one four," as he enters the collected information on his plotting board.

Pilot: "Stand by to drop seven and a deep. Now! Now! Now!"

Number four: "Roger, buoy seven and a deep. Range on buoy seven, 600 yards. Cavitation on buoy five." The cavitation, or noise, of the submarine's screws is picked up by the floating sonobuoy. The *Tracker* closes in on its target. Inside, tension mounts.

Number three: "MADMAN, marked."

"Roger."

Pilot: "Bomb five. Now! Now! Now!"

There is an ominous *whoosh!* as an explosive charge is fed to the JULIE sonobuoy below.

Number four: "Double echo, sir." The sub is sending echoes back to both sonobuoys.

Copilot: "I think maybe he changed course again."

Pilot: "Stand by to bomb seven. Now! Now! Now!"

Copilot: "Okay, looks like this may be it."

Number four: "We've cavitation on both buoys."

Number three: "MADMAN, marked!"

Pilot: "Noisy little bugger, isn't he?"

Copilot: "We've got a positive fix on him."

Pilot: "Roger, let's drop three practice depth charges and get him to come up."

The sub can't escape. The *Tracker* crew signals with practice depth charges for the friendly sub to come up and compare notes on the ASW exercise.

What if it hadn't been a drill? What if this was for real and that was no friendly sub?

Well, with a mission this successful, there would have been one substantial change in the sequence of events. The sub wouldn't have come up to "compare notes."

It wouldn't have come up at all.

For the Navy team that recovered both astronauts and spacecraft after the successful *Gemini 12* mission ended in an Atlantic splashdown, the task was a hectic one—as the account below will prove.

NAVY MEN HELP MAKE LAST GEMINI A SUCCESS

By Ltjg. Alexander B. Daunis
Helicopter Antisubmarine Squadron 11

IT WAS 3:49 P.M., Tuesday, November 15, USS *Wasp* time, when LCdr. Samuel R. Aydelotte landed his SH-3A *Sea King* helicopter aboard the antisubmarine warfare carrier as the ship steamed in choppy Atlantic waters about 600 miles east of Cape Kennedy, Fla., at a point almost midway between Bermuda to the north and Puerto Rico to the south.

The landing itself was without incident, but it was watched closely by hundreds of officials and newsmen aboard the carrier and millions of viewers on home television sets across the U.S.

They were watching, of course, the successful completion of the last of the 12 *Gemini* manned space flights designed to advance the U.S. several giant steps in the march to the moon.

Leaving the *Sea King* moments after the landing, the men who manned the *Gemini 12* spacecraft were greeted by the cheers of *Wasp* crewmen and the hearty handshakes of officials from the Navy and the National Aeronautics and Space Administration.

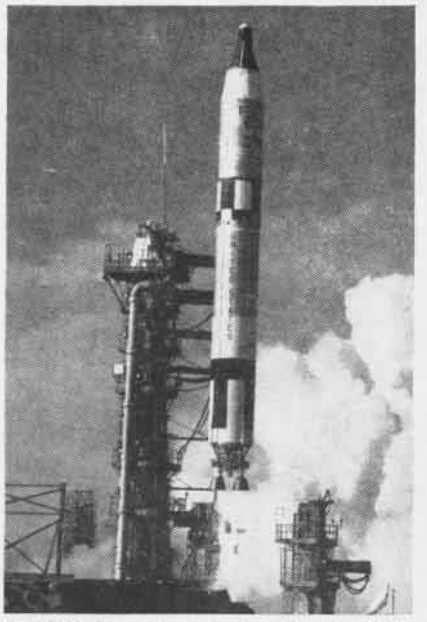
For astronauts James A. Lovell, Jr. (Captain, U.S. Navy), and Edwin E. Aldrin, Jr. (Major, U.S. Air Force), it was the end of a job well done.

The same could be said, too, for the Navy team that participated in the last, vital phases of the space flight—the recovery of the *Gemini* spacecraft and its occupants from the Atlantic.

Not only had the men of *Wasp*, its assigned CVSG-52 squadrons and the rest of the Western Atlantic Recovery Group been involved in the last of the *Gemini* series, they could also chalk up participation in fully 50 percent of the flights—numbers four, six, seven and nine, in addition to 12, to be exact.

With number 12, the key Navy units and their commanders were:

- Carrier Division 14, commanded by Rear Admiral P. W. Jackson, who flew his flag in *Wasp*.
- The carrier, skippered by Captain M. R. Etheridge.
- The destroyers *Joseph P. Kennedy, Jr.*, commanded by Commander J. W. Hayes, Jr., and *Lloyd Thomas*, with Commander R. E. Nicholson at the helm.
- CVSG-52, headed by Commander P. L. Highsmith, and including these squadrons and commanders: HS-11, Commander J. R. Williford; VS-28, Commander H.



GEMINI 12 *astronauts Lovell and Aldrin are launched on a four-day space flight.*

ALDRIN *carries a micrometeoroid package to the spacecraft in extravehicular activity.*

AGENA TARGET *docking vehicle orbits the earth, attached to the Gemini 12 spacecraft by a tether Aldrin connected during EVA. Agena was launched 98 minutes before Gemini.*

HS-11'S *Search One crew included (L to R) Lt. Elliott, Ltjg. Holifield, AX3 Raming.*

CREW *of Search Two was made up of (L to R) LCdr. Newton, Lt. Colwell, AX3 Sawha.*

MANNING *primary recovery helo were (L to R) Ltjg. Davis, AX3 Kerr, LCdr. Aydelotte.*

SPACECRAFT *containing astronauts splashes down in Atlantic near recovery force.*

PARARESCUEMAN *jumps from an HS-11 helicopter into choppy Atlantic waters to start recovery procedures. Frogmen Roger H. Bates and Charles J. Couslin were first in.*

ASTRONAUT *Edwin Aldrin, assisted by frogmen, emerges from the Gemini 12 spacecraft after ending more than 94 hours in space.*

ALDRIN *is hoisted into an HS-11 helo. The GT-12 spacecraft he and James Lovell rode in splashed down three miles from Wasp.*

B. Lee; and VAW-12's Det. 18, LCdr. R. F. McCartney (OinC).

• Underwater Demolition Team 21, with recovery veteran Ltjg. Dennis W. Bowman as OinC.

These were the forces in the recovery area. They'd left port November 5 and, after conducting recovery practices both en route and on station, they were ready November 9 for the GT-12 launch.

Then came word, from NASA Recovery Team Leader Jerome Hammack, of a one-day delay caused by a malfunction in the *Gemini* launch vehicle's secondary autopilot. Navy, NASA and press settled down to wait for repairs.

The next day came, and along with it another delay. Again, the cause was the secondary autopilot —but this time gyros were not erecting properly in the replacement just installed.

In the recovery area, another practice was scheduled.

THE PROBLEMS at the Cape were solved. At 3:08 P.M., *Wasp* time (2:08 P.M., Eastern Standard Time), the *Agena* target vehicle was launched; 98 minutes later at 4:46 P.M., *Gemini 12* was boosted into space by its *Titan II* booster. At 5:02 P.M., word was received aboard *Wasp* that the spacecraft was in orbit.

Recovery team personnel settled down again for another wait—this one the expected four days that the mission would last. A few more practices were held, including one at night, to keep the Navy men on their toes.

The weather gradually worsened; seas increased to eight feet.

Recovery day dawned gray and threatening. There was a brief break in the weather, but then it deteriorated to its previous condition—"lousy," one weather-watcher said. It was a far cry from the calm, sunny conditions recovery personnel had become used to during earlier missions.

Pilots manned their aircraft that morning for the first of the twice-daily, "go-no go" situations as they had done each time the spacecraft passed over the area.

Came the afternoon, and now it was definitely "no go" because, as *Gemini 12* came up on its 59th revolution, it was time for recovery.

ABOARD *the carrier, their mission over, astronauts greet Rear Amiral P. W. Jackson, ComCarDiv 14, and discuss the last of the Gemini series of manned space flights.*

The pilot's brief began at 1:15 P.M. LCdr. D. C. Hansen, ship's CIC officer, gave a final operations rundown and went through the expected sequence of events—from retro-rocket firing over Canton Island until splashdown some 35 minutes later.

LCdr. Aydelotte, HS-11's operations officer in addition to being command pilot of the primary recovery helo (*Search Three*), discussed weather. He said it "was not as good as we'd hoped for"—and reviewed recovery procedures.

The brief over, pilots, crews, swimmers, and photographers (in a fourth helo) manned their aircraft. *Search One*, HS-11's number 61 aircraft, was spotted forward on the flight deck. Its crew included Lt. Ronnie R. Elliott, pilot; Ltjg. Carl W. Holifield, copilot; and AX3 R. C. Raming, aircrewman.

Behind them, in *Search Two* (number 62), were LCdr. William P. Newton, pilot; his copilot, Lt. Charles R. Colwell; and their aircrewman, AX3 (AC) John M. Sawha.

Still further aft, AX3 Konrad Kerr, *Search Three's* aircrewman, was busy checking out his special microphone and helo number 66's hoist, while copilot Ltjg. J. E. (Ned) Davis helped LCdr. Aydelotte go through the check list.

Pilot of the photo aircraft was Commander Williford. His copilot was Ltjg. John I. O'Brien; AX1 (AC) E. R. Gilley was aircrewman.

At 2:05 P.M., the aircraft were started. Eight VS-28 S-2E's, contingency search units, were turned up aft on the flight deck. VAW-12 Det. 18's E-1B *Tracer* was positioned on the starboard catapult. Inside it were LCdr. Rodney F. McCartney, pilot, his copilot, Ltjg. Ronald J. Moser, and two naval flight officers, Ltjg. Matthew R. Banner II and Ltjg. Joseph A. Strasdauskas.

At 2:30 P.M., the helos and the E-1B were launched.

At 2:46, JOSN Kenneth B. Anderson announced over the 1MC that the *Gemini* retro-rockets were fired on schedule.

What happened after that was recorded for posterity by every photographer and TV camera aboard both ship and aircraft. After it was picked up on ship's radar at 3:11, the spacecraft was spotted visually at 3:18. Hanging below its brightly-colored parachute, the vehicle splashed down in the choppy Atlantic. It was 3:21. The recovery procedure, from the time the first frogmen hit the water to *Search Three's* return to the carrier took less than a half hour.

Gemini 12, the last of the series, was over. But several thousand Navy men would recall the event for a long time to come. They'd helped the astronauts complete their mission, so they'd participated in the giant steps that will put a U.S. spaceman on the moon.

The Never-Ending War on Fire

USING SCIENCE AND 'LIGHT WATER'

By Richard L. Tuve
Naval Research Laboratory

FIRE AND FLAMES are great when you're looking at the crackling logs in the fireplace on a chilly night in the lounge of the O-club after the day's flight ops are over. But in the cockpit after you've just "set down," they definitely don't belong.

In today's complicated aircraft and ship operations, the hazard of accidental fire is ever-present. The fight against this enemy is a continuous one, a struggle spearheaded by a team of scientists, chemists and chemical engineers at the Naval Research Laboratory, Washington, D.C. There, a special Fire Research Laboratory—the only one of its kind in the armed services—has been developed to study better ways to combat fires.

Since the early days of aircraft carriers, NRL researchers have been "taking apart" fire and flames and fuels to learn their tricks. The WW II successful application of the now-old airfoam in the Navy, afloat and ashore, was their first victory. And they have gone on to achieve even greater technological advances in fire protection and fire-fighting methods since then: The fog-foam systems on carrier flight and hangar decks; the MB series of air station crash-rescue trucks; the protection of fueling depot tanks with subsurface injected foam; the origination of the super-effective Purple-K-Powder (PKP) dry chemical extinguisher; and the perfecting of the only successful liquid fire extinguishing agent for magnesium fires, TMB (with the very long chemical name of trimethoxyboroxine).

The latest important finding of this team concerns a new discovery in fire fighting. Scientists have come up with a simple way to make *water float on gasoline and jet fuel* —instead of the opposite, which is the true physical state of their comparative densities.

The research which led to the development of this new system, aptly named "Light Water," began in 1960. It took almost three years to find the correct synthetic chemical compounds which could be dissolved in ordinary water and result in the new fire-inerting phenomenon of sealing over the surface of fuel with water so that it becomes "fireproofed."

A complete explanation of *how* it happens is complicated and as yet not fully determined, but it's all tied up with the properties of the surface "skin" of fuels and the characteristics of the new non-toxic chemicals used in Light Water. These compounds, which contain fluorine, confer special properties on both the skin of the liquid flammable fuel and the skin of the water in contact with it. This allows molecular orientation and support of a completely covering layer of water on top of the fuel, which prevents the formation of combustible vapors above spilled avgas or other fuel. When fuel is ignited, the spreading film cuts off the flames. It's like pulling a fireproof blanket over the burning surface.

The NRL team has put the discovery of Light Water to work in several areas where it is vitally needed for the protection of Naval Aviation personnel from fire. Working closely with the industry which manufactures fire-fighting equipment and the Light Water formula from NRL's specifications, a brand-new concept of dual agent application was designed by the NRL group and the Twinned Agent Unit (TAU) was born.

This device consists of two spherical, aluminum, pressurized containers, one of which is filled with 400 pounds of PKP dry chemical and the other with 50 gallons of Light Water solution. A dual hose from these tanks leads to a double nozzle held in the fire-fighter's hands. By pulling a trigger valve in a pistol-grip nozzle, he can direct either a flame-quenching cloud of powder at the fire or a dense storm of Light Water white foam on the burning area.

In actual practice, the fireman shoots his PKP cloud into the flames first and cuts down heat to almost zero. Then he opens his Light Water nozzle and coats the fuel and any hot surroundings with cool, fireproofing Light Water. Thus he can penetrate safely a crashed and burning aircraft almost as fast as he can walk and quickly rescue a trapped pilot or radarman.

The TAU weighs only 1,700 pounds fully charged and ready to go, so naval air station fire chiefs have put it on half-ton pickup trucks for ready use in case of fire.

Consider this comparison which highlights TAU's effectiveness. With its 800 payload pounds of agents, TAU equals the fire-killing power of *at least* 1,720 pounds or 206 gallons of ordinary protein airfoam solution from an MB truck or 2,065 pounds of carbon dioxide gas discharge from the 0-6 truck.

Fire fighters have used the TAU in actual emergencies of many kinds. They like it because it gives them an instant choice of applying either or both of two very different kinds of fire-extinguishing agents: a powerful and penetrating flame-quenching powder cloud which rolls for long distances—even up into a fuselage cavity or a dripping fuel wing tank; and a cooling, foam-water-spreading agent that completely halts flammable vapor emission from burning or spilled fuel.

Linking the helicopter with Light Water has produced an efficient "flying fire engine." This grew out of the realization by the NRL team that something needed to be done to help aviation personnel who come down in the boondocks. The station crash-rescue trucks don't get very far away from the hardstand. A downed aircraft couldn't be quickly reached by truck in the swamps or the mesquite and rocks near air stations.

To determine its effectiveness, a UH-2A helicopter was fitted with a

boom and nozzle which could spray Light Water down on a burning fuel surface. A series of tests was then made at NAS MIRAMAR using old fuselages and JP-4 fuel areas 20 to 40 feet in diameter. These tests were phenomenally effective: A small container of only 60 gallons of Light Water solution (600 pounds) piped to the outrigged boom could put out all fires in as little as 8 to 30 seconds, permitting pilot rescue by a ground rescue team (which was also carried to the fire by helicopter).

In the Miramar experiments, the tenacious film of Light Water spread by the hovering helicopter involves direct replacement of the old protein foam concentrate with Light Water concentrate in the tanks of the MB-5 crash-rescue, fire-fighting trucks at all naval air stations. This decision wasn't reached easily or quickly. It took an extensive testing and development period, covering the last two years.

IF YOU had occasion to go to NAS MIRAMAR last summer, any time between July 5 and August 1, you would have seen a large group of workers toiling in the dust not far from the duty runway. Every so often a black smoke cloud arose, followed by belching red-orange during the fire was recorded. At the same time, a continuous color motion picture record was made with a special coordinated time-registering device.

Nothing (except the wind and weather) was left to chance in the tests; even the remarks of the official observers were recorded on tape. These records and the data, which were statistically averaged, were put together in the laboratory after the test period was over.

The tests showed that when Light Water was substituted for the old-fashioned protein type airfoam in the regular naval air station crash-rescue fire vehicles, the speed

TRUCK AND HOVERING HELICOPTER DEMONSTRATE EFFECTIVENESS OF NEW 'LIGHT WATER' ON RAGING FIRES

resisted being blown away by the downwash. The fuel fires were consistently and permanently put out by the helicopter pilot as he maneuvered the aircraft over the burning wreckage and controlled the application of the extinguishing agent with a handheld, electric, pushbutton, solenoid valve control.

These successful results sparked the decision of NASC authorities to institute a design project at Naval Air Development Center, Johnsville, Pa., for adapting the Light Water fire-fighting system to all air-sea rescue helicopters. Droppable tanks and a pressure system for supplying Light Water to the outboard-boom nozzle are being prototyped by the center at Johnsville.

The most recent application of this extraordinary new water agent flames. The fire comparison tests were being run by the NRL team, assisted by all the Miramar off-duty fire fighters and their chief, Don Huber. These tests advanced the science of fire-fighting.

The tests were designed in a very special way. Duplicate fuel fires of definite, predetermined size were developed, starting with a small area and progressing to larger areas until the fire was finally too large to be extinguished by the agent and equipment under test. In this way, it was possible to draw graphs of "limiting rate performance." During each test, an elaborate recording device took temperatures of the fuel being burned, the percent of radiation reached by the fire and the progress of putting out the fire —all on a strict, split-second time axis. Every event which occurred and efficiency of fire control was increased by as much as 200 to 300 percent.

This great forward stride in successful fire fighting is typical of the results obtained by this unique research effort—saving lives through scientific study.

Editor's Note: As we went to press (December), NANEWS learned that Dr. Tuve had returned from the West Coast where he worked aboard the USS *Oriskany* with a damage control study team from the Naval Ship Engineering Center, Washington, D.C. Dr. Tuve reports that as a result of implementing the recommendations of these experts in fire protection, ordnance design and handling, and ship compartmentation — these experts have studied this serious fire—there should never be a recurrence of the oxygen-hungry, 5,500°-temperature fireball that scoured the *Oriskany* and killed 37 of her airmen and seven gallant crewmen.

A GLOBEMASTER *transport disgorges a communications van at NAS Cubi Point. In foreground, Lt. T. M. McGrath checks work.*

AIR TERMINAL *personnel assigned to NAS Cubi Point's new 'MAC Channel' operation offload cargo from incoming transport plane.*

CUBI'S 'MAC CHANNEL' GOES NAVY

By SSgt. Jerry Hirsch
Photos by Dave Namerow

HUNDREDS of transports, mostly Air Force Military Airlift Command or MAC contract, have been flying millions of pounds of cargo—including repair aircraft parts vitally needed in the combat zone—into and out of Cubi Point Naval Air Station in the Republic of the Philippines since May. This increased activity is occasioned by extending the Air Force "MAC Channel" for better support of Navy and Marine units in Southeast Asia.

The "Channel" (which refers to the flow of material) was extended so that NAS CUBI POINT could act as the "pivot point" for expediting the delivery of critical parts needed for land-based Marine Corps combat aircraft and carrier-based planes. Cubi Point is just across the bay from the naval base at Subic Bay which provides direct support to the U. S. Seventh Fleet.

Before the channel was extended, high priority cargo was delivered from the continental United States to the Navy in Southeast Asia via Clark AFB, some 50 miles northeast of the naval air station. Thus, valuable time was lost because the gear was handled two or three times and hauled overland by truck to Cubi. Then it was sorted again and loaded aboard locally based aircraft for final delivery to operating units.

Now the transports land at NAS CUBI POINT where personnel of the MAC channel take over and immediately load repair parts from the transport into twin-engine C-1A *Traders* for Carrier-on-Board (COD) delivery. At the same time, MAC and 315th Air Division aircraft out of Clark AFB and the Port of Mactan make scheduled stops at Cubi to onload material destined for land-based Marine air units. In addition, all other support services required by the transports and their crews are the responsibility of the terminal personnel.

The tempo, scope and efficiency of operations at the Cubi Point MAC terminal are not unique. What is unusual is that the terminal is not Air Force manned as is usually the case, but is being operated solely by Navy men and Navy-employed personnel. There isn't even an Air Force liaison officer on the scene. Although the MAC channel at Cubi Point lends itself well to a joint Navy-Air Force venture of this nature, the success of the operation depends on an all-out effort in training, teamwork and ingenuity by all of the agencies involved.

HYDRAULIC *keylift brings a drop tank down; operator is ABH2 William W. Moss.*

Key to the operation is its Airlift Command Post. Part and parcel of MAC terminal operations throughout the world, ACP's are not common to Navy facilities. Yet officials at Cubi were faced with the task of setting one up on short notice—without qualified or experienced people to run it.

Chief Air Controlman Oliver G. Williamson was assigned to the air station in July to run its ACP. He confesses that, before his arrival, he'd never heard of an ACP.

"We had to start from the ground up," he says, "but we're learning—and we're doing the job."

"The job" is a big one. Cubi's ACP is responsible for briefing pilots, controlling the filing of flight plans, supervising air crew billeting and monitoring and coordinating aircraft parking, refueling, loading and unloading. All these activities are carried out simultaneously as aircraft land, and they are evidently carried out quite well.

"In just about every case, we meet or beat ground time," says Lt. Thomas M. McGrath, OinC of the Navy Overseas Air Cargo Terminal Detachment. "Ground-time" refers

to limits established by MAC for servicing its aircraft.

The majority of MAC transports are on the ground at Cubi for an average of two to four hours. Others remain longer only because of crew rest stops.

In that time, necessary aircraft servicing and cargo-handling operations are carried on by Lt. McGrath's detachment, a task force of air terminal personnel and the six individuals assigned to the ACP.

They are becoming accustomed to handling a diversity of aircraft which includes jet-powered C-141 *Starlifters,* C-121 *Super Constellations,* C-124 *Globemasters,* C-130 *Hercules,* C-133 *Cargomasters* and DC-7 and DC-8 transports.

Coping with the influx of planes and their cargo is Lt. McGrath's right-hand man, Chief Storekeeper Richard F. Kral, who supervises detachment personnel seven days a week as they control the flow of the cargo. Working closely with this crew are the air terminal sailors, who do the actual loading and unloading. Their OinC is Ltjg. Jack W. Wilson and their enlisted supervisor is Chief Aviation Ordnanceman Robert G. Yates.

Working in 24-hour shifts, the Navy men find themselves over their heads—quite literally—in cargo. Lt. McGrath estimates that as much as 500,000 pounds of gear has been on the ground at Cubi at one time. The sailors must maintain every pound in storage areas on the flight line, cover it with plastic sheets as protection against rain and put it on aluminum pallets—or "palletize it" as the Navy men say—so it can be rolled aboard incoming planes.

Everybody who works on the joint project admits it gets hectic. Chief Williamson's ACP has had to contend with as many as six transports on the ground at once. One Navy official at Cubi wryly noted that advance notice of aircraft arrivals can vary from ten minutes to ten hours (the average is one-two hours).

Lt. Wilson's men, on the other hand, report they have had 11 transports at a time waiting for servicing, loading or unloading.

As might be expected with an operation this new, Cubi's MAC channel has had its problems. Just mastering Air Force terminology was one of them, Chief Williamson says; more difficult to resolve are a lack of manpower, sufficient ramp equipment, aircraft parking space, berthing facilities for transient crews and storage sheds.

Operationally, Chief Williamson says, Air Force crews have faced occasional delays in aircraft servicing because of the demands by Navy aircraft on Cubi facilities.

"There have been adjustments on both sides," he points out.

Even with the problems, however, the average turn-around time for aircraft does meet or beat MAC requirements, and a phenomenal amount of cargo has passed through the facility.

During the channel's first month of operation, the station serviced only 29 MAC aircraft; assigned personnel offloaded 401 tons of cargo and placed 187 tons aboard the same planes. That was back in May. Since then, the figures have climbed steadily.

In July, for example, 75 MAC aircraft brought 920 tons of cargo to Cubi and left with 528 tons.

The September picture shows 98 MAC transports arriving. Cubi ground crews handled 2,241.8 tons during the month.

Now, Cubi averages more than four million pounds of cargo a month, of which three million pounds is called MAC Channel cargo—primarily "very high priority" aircraft repair parts.

"Acres and acres of engines and rotor blades for helicopters are included in the 'hot' cargo delivered by MAC transports," Lt. McGrath notes. Other cargo includes radar and radio units, drop tanks, strut assemblies, fighter and bomber engines and wing assemblies.

Benefits of the Cubi operation have been termed very real by Navy officials. When some of Lt. McGrath's superiors visited the installation, "they were able to see parts come in direct from the States," he says.

The possibility that combat aircraft out-of-commission time has been drastically reduced because of the MAC channel is evidenced, the lieutenant points out, by the fact that at least 48 hours have been knocked off the time it takes parts to get where they're needed.

"You're saving days in an operation where minutes count," he says—and no one in the ranks at Cubi will argue that point.

JOINT EFFORT *at Cubi is typified by an Air Force plane, Navy air terminal crewmen and a Marine Corps liaison representative.*

BIG LIFT *provided by a hydraulic keylift driven by AM3 Ron Glaus is the major "tool" for loading and unloading transports.*

OBSERVER *from the carrier Kearsarge is hoisted into a helo from the destroyer Bradley during Exercise Silverskate (left). Below, the guided missile destroyer Cochrane, a unit of TF 70.4, races toward a sub picked up by the ship's sonar, while Rear Admiral E. T. Reich, ComASWGru Five, issues an order after evaluating incoming intelligence concerning the "enemy."*

WITH A 'GO' FROM THE CAT OFFICER, A

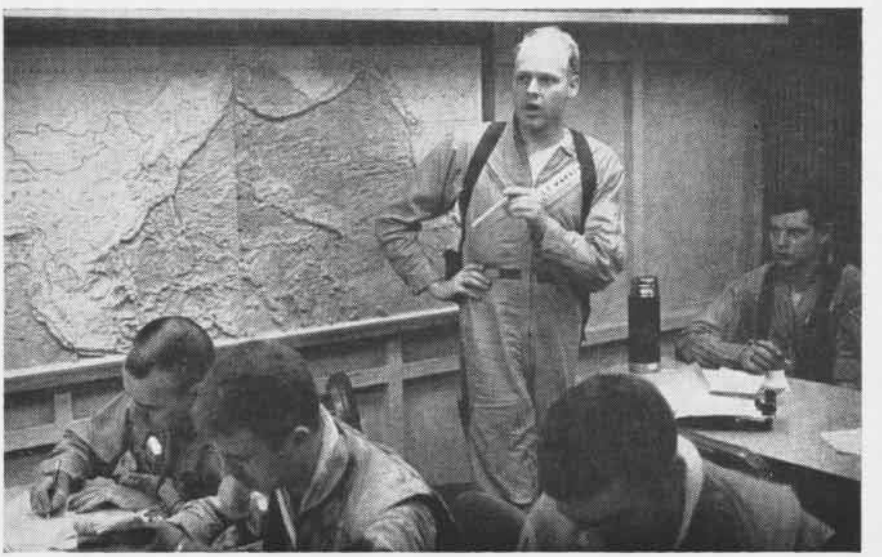
EXERCISE '
ASW TRAINING IN

Photographed by

It was a sham battle. No shots wer
with live weapons and there were
ASW training mission held in the e
admiral to seaman the chance to pr
cumstances that came as close as po
rines—the *Bonefish, Pomodon* and S
the men of Task Force 70.4, includi
ASW air group CVSG-53, got the rig
track down an "enemy" that lurked

-2 TRACKER IS LAUNCHED FROM KEARSARGE

REQUIRED *to run on the surface after being "lost in action," the submarine Seadragon is framed in the cockpit window of an SH-3 Sea King (right). In-flight refueling of a Sea King is handled by a crew member of Bradley (below), while, in Kearsarge's debriefing room, a pilot reconstructs a patrol flight he has completed to provide intelligence (bottom).*

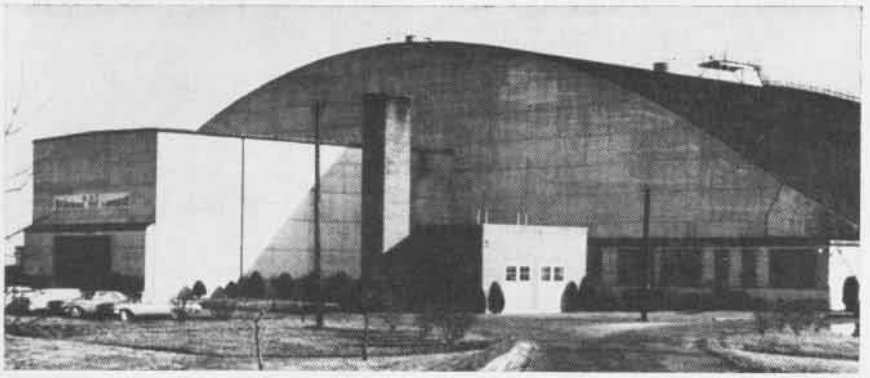


ILVERSKATE'
IE SOUTH CHINA SEA

l William M. Powers

ired in anger, no aircraft were launched casualties. But Exercise *Silverskate*, an rn South China Sea, gave everyone from ce battle station assignments under cir- le to the real thing. Three U.S. subma- *ragon*—were on hand to make certain the carrier *Kearsarge* and its embarked ouch of realism in their four-day effort to der the ocean, hidden and hard to find.

NAVY'S INTERFERENCE TEST LAB



THIS HANGAR-LIKE STRUCTURE IS HOME OF THE INTERFERENCE TEST LAB

TESTING THE latest aircraft, the newest weapons systems and the most intricate electronics equipment goes on daily at the Naval Air Test Center at Patuxent River, Md. One of its facilities, the Interference Test Laboratory, conducts its work in a building large enough to house an entire aircraft. Its mission is to ensure that one piece of electronic equipment in an aircraft does not impair the efficiency of another.

Before the structure they now use was completed in 1949, the scientists and technicians had to conduct the tests on simulated aircraft installations in shielded rooms. Now they do their tests in a big hangar-like structure especially designed and built to meet their needs.

The big laboratory consists of a controlled area of approximately 150 by 300 feet and a nose bay area of approximately 100 by 60 feet. The ceiling height is 66 feet at its highest point. A single layer of galvanized iron hardware cloth, eight meshes per inch, supported by wax-impregnated wood framing, shields the wall and ceiling areas. A double layer of the same hardware cloth is embedded in the hangar floor. All joints are soldered for maximum shielding.

Each of the two shielded laboratory doors, of approximately 35 by 150 feet, consists of iron galvanized hardware cloth, also of eight meshes per inch, supported by wood and steel framing. The doors ride on brass grounding plates with beryllium copper grounding fingers to provide shielding continuity at each junction.

Directly parallel to the shielded doors are two solid steel weather doors which provide protection during winter months. Directly above the steel doors in the center of the laboratory is a steel canopy door, 30 by 70 feet, which affords clearance for the vertical tail assembly of large aircraft.

The shielding of the laboratory provides a means of preventing classified types of radiations from being transmitted beyond its confines and likewise prevents external noise from entering the enclosure.

The laboratory provides a capability in three types of tests:

- To test the electromagnetic compatibility of the total airborne system, the aircraft is placed inside the hangar. All systems are checked and adjusted so that they operate in accordance with performance specifications.
- Each system or sub-system is operated as a potential source of interference to all other systems. To cover the entire spectrum of possible frequency combinations would be time-consuming and unproductive since frequency combinations most likely to produce interference can be predicted. Where no interference can be predicted, three frequencies are arbitrarily chosen and put into the frequency selection plan. Once a malfunction is uncovered, steps are taken to overcome or offset it.
- Measuring the susceptibility of an airborne system to a high-intensity electromagnetic environment can be done at the laboratory. The aircraft is placed in the hangar and all systems are checked and adjusted. For example, during the avionics systems evaluation of a drone helicopter, signals are provided to simulate the electromagnetic environment aboard a destroyer from which the drone is designed to operate. Signal levels and frequencies are varied while the system is put through its operational sequence. Any malfunctioning is thereby discovered.

Although the shielded hangar was built for and is administered by Naval Air Systems Command, it is used on projects of general interest to all military services and is available for the use of appropriate contractors.

AF Camera Pod Modified

Work is Done at Point Mugu

A TV camera pod, developed by the U.S. Air Force, is being refined by Naval Missile Center, Point Mugu, for use in missile and rocket test and evaluation programs. The project is under the direction of Gordon D. Hill, Graphics Department technologist.

A small-screen TV receiver in the chase plane's cockpit acts as a monitor and greatly increases the reconnaissance pilot's capability in photographic composition. In the past, pilots have used gunsights mounted on the aircraft to frame the picture, a method which often led to unsatisfactory coverage of the tests.

The basic pod is equipped with a TV vidicon camera, a 16mm motion picture camera, a timing receiver, heat blankets, fans and antenna. NMC electronics technicians added an R.F. transmitter and made other modifications.

The program calls for four of the pods to be built. The first, originally dubbed "Wide Eye" by project officials, is already operational. This forward-looking pod has been successfully mounted on an F-4 *Phantom II*. The second pod, under construction, will also have a side-looking capability.

These pods will improve the service to project engineers and Pacific Missile Range users and provide permanent film and tape records of test events.

TWO 'REDEYE' MEN SET UP DEFENSE AGAINST AIR ATTACK BY 'ENEMY'

TACC ALERTS UNIT TO 'ATTACK'

MARINES TRAIN WITH REDEYES AT EL TORO

By SSgt. Don Summerford

MOST MARINES' eyes are blue, brown, black, gray, green or hazel. But there is an exception—a platoon of Leathernecks in Southern California, which proudly boasts having *Redeyes*.

They admit they haven't always had them. In fact, their platoon is the first of the Marine Corps so equipped.

Division *Redeye* Platoon has been trained at MCAS EL TORO in the operational use of the infra-red, heat-seeking antiaircraft missiles. The *Redeye* missile is a versatile and extremely accurate weapon. Whether it is used to give the front line offensive power or to guard an airfield or ammunition dump in the rear echelon, the *Redeye* provides immediate defense against low-flying aircraft.

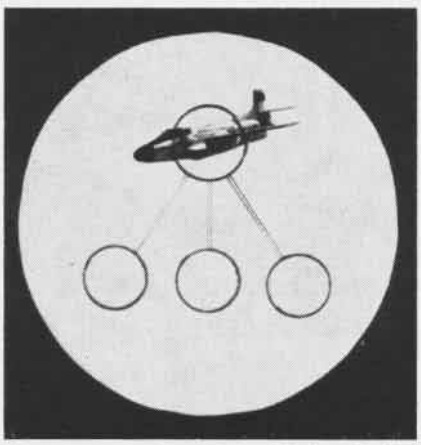
The shoulder-fired missile is completely contained in a single easy-to-carry launcher. Weighing less than 30 pounds, the missile/launcher combination is as agile as are the Marines themselves.

While at El Toro becoming familiar with aviation procedures, the platoon, under the command of 2nd Lt. S. G. Patten, spent much of its time "eyeing" aircraft from surrounding hills as they approached the air station during effectively simulated fire missions.

Since much of the initial detection and identification is accomplished by the naked eye, platoon members spent hours in classrooms becoming experts in aircraft identification.

While simulating defense of El Toro, all approaching aircraft were picked up, tracked on radar and reported through the Tactical Air Control Center (TACC).

Once a plane was picked up on the scopes and its position and approach pattern were determined, Lt. Patten and his platoon sergeant, GySgt. R. F. Beam, initiated action. Since the surrounding airspace was divided into sectors assigned to different teams, the information was relayed to the most logical team, the one in the best position to make the "kill."



WAY REDEYE SCOPE TRACKS TARGET

Although the pilots were unaware of the operation conducted below, the "boys with the redeyes" had them in their sights. Had it been an actual attack, the gunner would have picked up the target through optical sights and tracked it. Once the craft was identified as the enemy, he would have released his deadly missile.

With angular changes automatically computed, the lethal *Redeye* would lock on its target and close the distance with supersonic speed.

Following its training at El Toro, the platoon moved its operation to Marine Corps Base, Camp Pendleton, Calif., to further its proficiency in the use of the *Redeye* missile.

Before the platoon's departure, El Toro personnel noted that its members actually have normal eyes, but they agree they also have "red" ones that make them special.

Marine Squadron Activated

To Train Pilots in CH-46A's

Marine Medium Helicopter Training Squadron 302 became the second training squadron in Marine Helicopter Training Group 30. It was activated November 1 at MCAS SANTA ANA, Calif.

Lieutenant Colonel Elvyn E. Hagedorn was named commanding officer of the new squadron during informal ceremonies in the office of Colonel Virgil D. Olson who commands MHTG-30.

HMMT-302 will provide CH-46A helicopter training to selected pilots and maintenance personnel in support of the Fleet Marine Forces, Pacific. Approximately 29 officers and 33 enlisted personnel are now in the squadron. The unit will be fully staffed and in operational status by July 1, 1967.

Ships Get Cooling Units

4,000 to Southeast Asia Forces

Because the majority of surface ships operating in Vietnam waters are not air-conditioned, the Navy is speeding the shipment of some 4,000 air-conditioners to them.

The intense heat and humidity of Southeast Asia have a detrimental effect on the performance of personnel and shipboard equipment in the area. To relieve these conditions, a program has been implemented to provide the units as rapidly as possible.

The self-contained units have cooling capacities up to 7½ tons.

All ships under construction now, as well as those planned for the future, will be air-conditioned throughout living and work areas.

Now Under Construction

Buildings for NAAS Kingsville

An extensive building program for NAAS KINGSVILLE is in progress at a cost of nearly $1,500,000. Kingsville is one of three advanced air training bases in the Naval Air Training Command.

Principally, the construction is aimed at providing additional housing for the increased numbers of personnel reporting aboard the station as part of the step-up in pilot training. The program includes an additional airfield lighting system, new living quarters for station personnel and an addition to the officers' quarters.

A comparison of Kingsville statistics indicates the size of the step-up. Combined field operations for April, May and June of 1965 numbered 52,000. For the same months in 1966, the total was more than 126,000. In 1965, there were approximately 285 officers designated as Naval Aviators. The figure for 1966 was expected to reach 400 by the end of the year.

Station enlisted men will be moving into a modern three-story building that will feature central heating and air-conditioning. It will house 177 men. Also under construction is a 40-man aviation cadet building.

The new BOQ and the expansion of the present officers' dining facilities are slated for completion this spring. The three-story officers' quarters will house 80 men. The addition to the dining hall will approximately double the size of the present facilities.

TEAMWORK *between airborne and seagoing Coast Guard units is the watchword as efforts are made to subdue a fire aboard the burning fishing trawler Cara Cara off Boston. Four Coast Guard boats cluster around the trawler as a helicopter lowers a basket containing additional fire-fighting equipment. A fifth boat has the trawler in tow, while a Navy destroyer (not shown) stands by to provide additional equipment. All seven crewmen of the Cara Cara were safely taken aboard one of the Coast Guard boats. After the flames were brought under control, the fishing trawler was towed into Scituate.*

VR-22 Crews are Honored

Greatly Reduce Ground Time

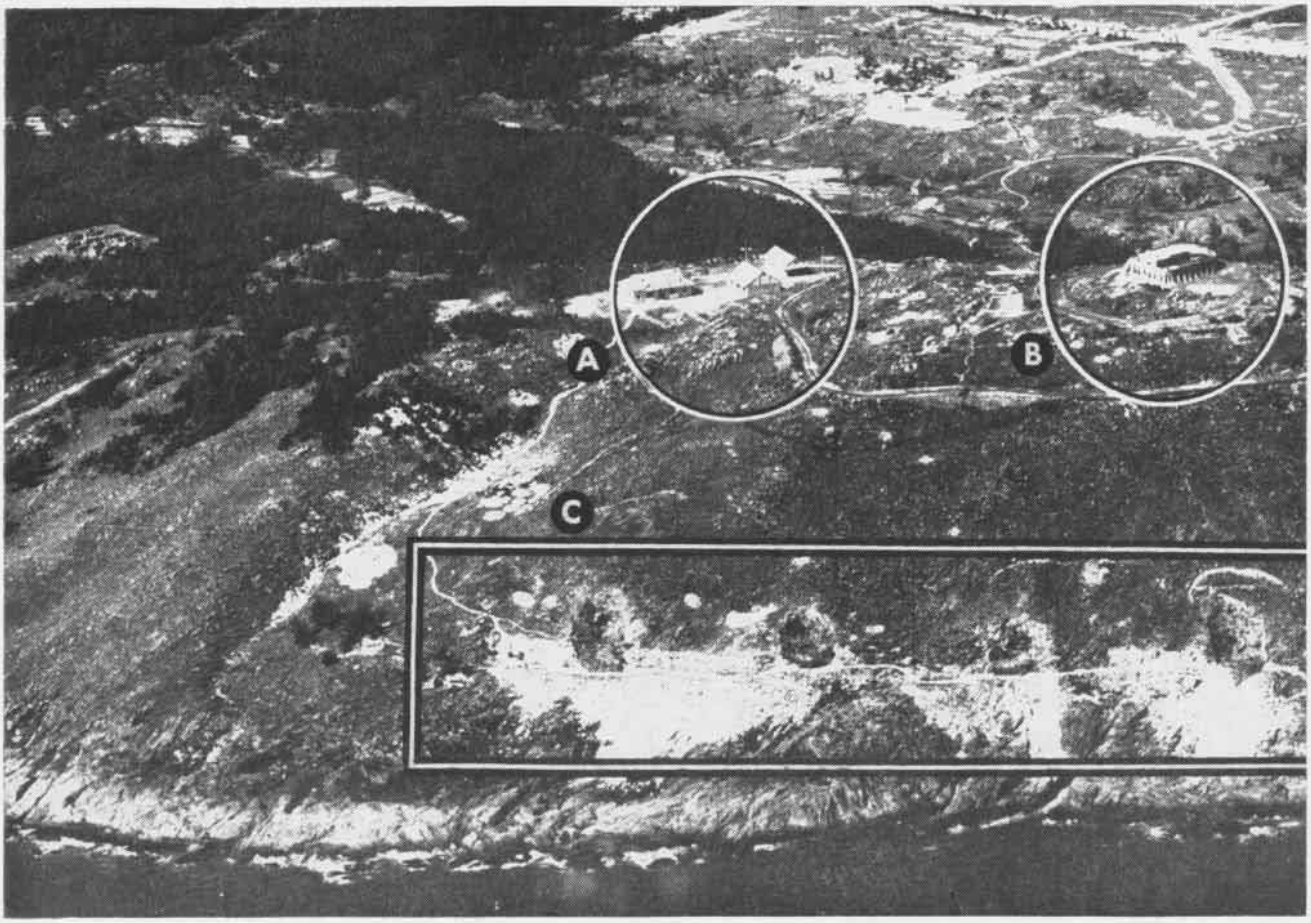
In October, two VR-22 crews, home-based at NAS MOFFETT FIELD, were selected to receive the Vietnam-based 617th Military Airlift Support Squadron's "Tiger Award" for reducing ground time at the Da Nang Air Base, Vietnam.

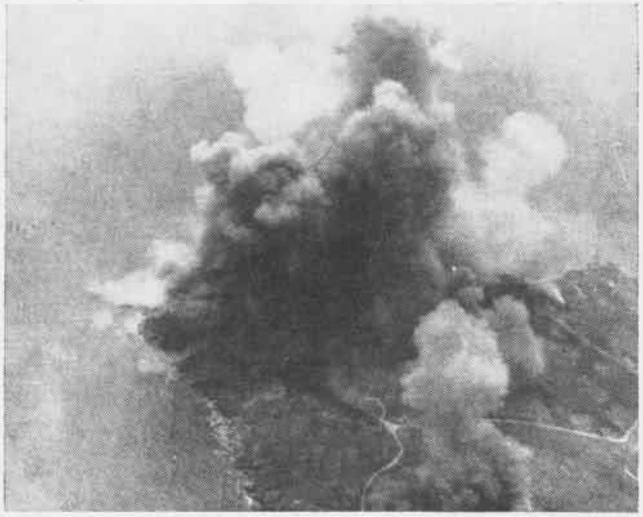
The 617th gives the Tiger Award to MAC crews that reduce scheduled ground time by at least 25 percent. The first MAC squadron to receive five Tiger Awards will be given a genuine Vietnamese, hand-carved marble tiger.

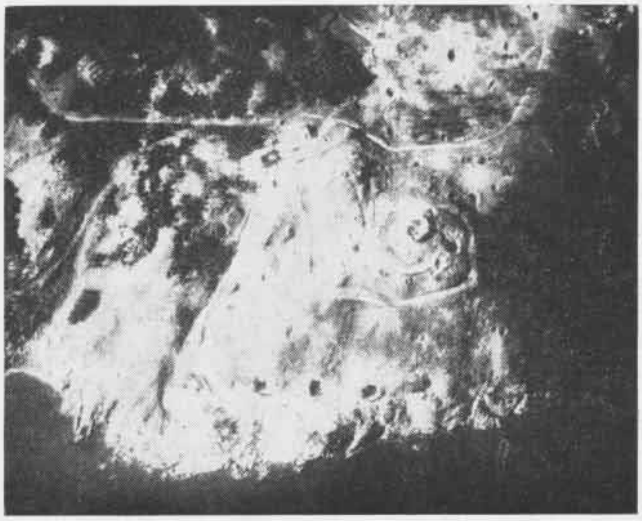
All aircraft operating through Da Nang are authorized two hours ground time to unload, reload, refuel and perform necessary maintenance. The VR-22 crews receiving the award were commanded by Lt. Archie B. Lawson and LCdr. Kenneth M. McLeod.

Lt. Lawson's crew received the award for reducing the allotted ground time by 37%; LCdr. McLeod's crew for a reduction of 25%.

CORAL SEA BOMBERS HIT CAP CHAO





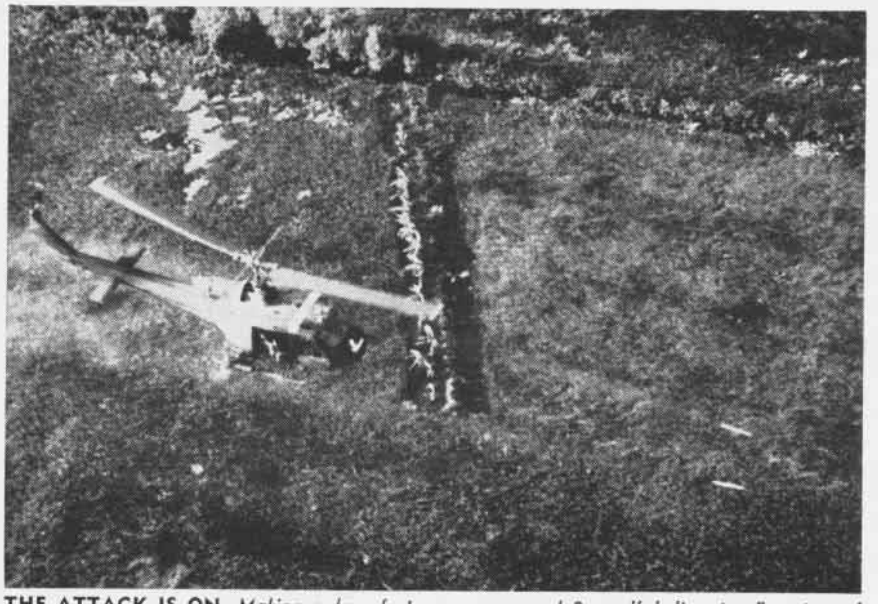


UNDER NEARLY *ideal weather conditions, multiple flights of Skyhawk and Phantom bombers from USS Coral Sea roared in to drop 500 and 1,000-pound bombs on the Cap Chao radar site and coastal gun emplacement complex, eight miles east of Thanh Hoa. The saturation bombing of this key defense area with more than 45 tons of high explosive was done by VA-22, VA-23 and VF-21. The pilots scored direct hits on the supporting structures (A), the "Parthenon" which is the main building resembling the ancient Greek temple (B) and central gun emplacements (C). After the smoke and dust cleared, photo pilots made runs and recorded destruction of the area.*

Flying high or flying low in an attack or to complete a critical reconnaissance mission in their UH-1B helicopters, the pilots of HC-1 claim that they are

SEAWOLVES ON THE PROWL IN VIETNAM

Story by JO2 Bill Rosier
Photos by PH1 L. R. Robinson



THE ATTACK IS ON. *Making a low, fast pass, an armed Seawolf helicopter fires two of its rockets at Viet Cong sampans that are attempting to make their escape from a canal*

SEAWOLVES—U.S. Navy aircrews flying UH-1B armed *Iroquois* helicopters (*Hueys*)—are a deadly enemy of the Viet Cong attempting to move on the rivers and canals of Vietnam's Mekong Delta.

The Navy airmen, members of three detachments located in the Delta area, are a new group with a unique job. Never before have Navy pilots flown helicopters as gunships in combat.

The *Seawolves* provide fire support and reconnaissance for U.S. Navy River Patrol Boats (PBR's).

The boats and helos are units of the Navy's Operation *Game Warden,* designed to prevent VC movement of men and supplies on the waterways of the Mekong Delta and the Rung Sat Special Zone, 30 miles southeast of Saigon.

The helicopters assist the PBR's in fire fights with enemy sampans and junks or against VC ambushes along the river banks.

Providing support for other friendly ground or waterborne units is another *Seawolf* mission. *Seawolves* also participate in rocket and strafing strikes, rescue downed pilots or others in distress and fly cover for medical evacuations.

Detachments 25, 27 and 29 of Helicopter Combat Support Squadron One make up the *Seawolves.* HC-1's home base is NAAS REAM FIELD, Imperial Beach, Calif. The detachments are stationed at northern, central and coastal bases for maximum Delta coverage.

Trained in tactics by Army pilots, the Navy men took over the armed helo mission three months ago. In that time, they have become expert combat support fliers with a devil-may-care flair. Flying at treetop level, then dodging inches above the jungle growth, they recon a VC bunker. Door gunners, held only by a safety belt, crawl outside the armed helo, battling the wind to repair a machine gun or rocket pod.

In the face of enemy fire, the helos swoop down to fly at ground level over a marsh or canal to seek out and destroy VC attackers.

In a large operation recently, two helos from Det. 25, based at Vinh Long, and one aircraft from Det. 29, temporarily based at Can Tho, sank 23 enemy sampans and destroyed 25 structures.

The helicopters, supporting the River Patrol Boats, Vietnamese

A SEAWOLF *port door gunner answers enemy fire with rain of lead into VC ambush.*

AIRMAN *A. B. Jenkins locks on barrel of one of M-60 machine guns helo carries.*

Navy River Assault Group (RAG) boats and Vietnamese Army units, circled behind the large force of VC and took them by surprise.

Flying low, the helos were so close to the targets that their own rocket blasts splashed mud on the windows. The terrible fire power of the planes' six machine guns swept the enemy before them.

Late that afternoon, the Navy pilots provided air cover for evacuating wounded Vietnamese soldiers.

In the evening, flying cover for Vietnamese RAG boats, the helicopters were called upon to rocket and strafe positions from which the VC had ambushed a contingent of Vietnamese RAG.

It's not all flying and fighting; the aircraft must be maintained. Det. 25, based at the Vinh Long Army helicopter center, gets top Army maintenance. Lt. John Linquist, assistant OinC of Det. 25, describes it as "the highest level of interservice cooperation."

The impression the Navy men are making at Vinh Long is revealed in one Army sergeant's remark, "In the short time they've been here, the Navy *Seawolves* have earned our unqualified respect."

How do the *Seawolves* feel about being in Vietnam? "All of us are volunteers," says Lt. Tom Greenlee, a *Seawolf* pilot. "We know we are doing a necessary job and our morale is high."

A NAVY, *armed Seawolf UH-1B helo teams up with a river patrol boat for a junk search.*

ACV'S USED ON COASTAL PATROL

AIR CUSHION Vehicles (ACV's) are proving effective in patrolling the coast of South Vietnam to prevent infiltration of men and supplies to the Viet Cong, according to Wilfred J. Eggington, chief of ACV design for Textron's Bell Aerosystems, Buffalo.

Three ACV's which were delivered to the U.S. Navy under a $2.6 million contract awarded to Bell, have been operating in Vietnam since May 1966. They make up Patrol Air Cushion Vehicle Division 107, Boat Squadron One, Military Assistance Command, Vietnam.

According to Eggington, the ACV's have distinct advantages over other patrol craft: greater speed, longer endurance, zero draft and high resolution radar.

The three craft, designated SK-5's, have operated effectively off the coast of Vietnam in seas up to seven feet and winds as high as 35 knots. Called "Charlie Victors" by their crews, the amphibious craft are being evaluated for coastal surveillance, intercept and investigation. They are also being evaluated for air-sea rescue, medical evacuation, logistics and resupply.

The SK-5 is 39 feet long, has a beam of 22.9 feet and is 16 feet high. Flexible trunks around the bottom of the vehicle enable the craft to clear obstacles up to four feet and improve riding qualities and speed over water. The ACV is powered by a single 1,000-shp turbine engine. It drives not only the seven-foot lift fan, which forces air downward to create the cushion beneath the craft, but also the aft-mounted nine-foot propeller which provides the propulsion.

Control of the SK-5 is achieved by bleeding air from the cushion through a trunk-lifting device and by rudders mounted on the twin-fin tailplane, which operate in the slipstream of the propeller.

The craft, armed with 50 calibre machine guns, operate out of Cat Lo, near Vung Tau, in the Mekong Delta region. They have also operated from a Landing Ship Dock stationed off the coast. Because they can operate over almost any surface, the ACV's move in and out of the LSD's well deck with ease.

Located at the Cat Lo base to provide continuous maintenance assistance is a Bell field engineer.

A SAMPAN *is searched for possible contraband by a crew of one of the Navy's ACV's.*

FLEET AIR WINGS ON PATROL

VP-18'S CREW *Three won the gratitude of the 10-man crew of a fishing vessel by guiding aid to the stricken "Jane D."*

THIRTEEN *was the lucky number of men of Patrol Squadron Ten who were designated qualified Combat Aircrewmen in the P-3.*

VP-18's Crew to the Rescue

Hurricane *Inez* spelled "rescue" for at least one ship in the Caribbean. The *Jane D*, out of Miami, was found adrift and helpless by Patrol Squadron 18's Crew Three.

Forced to evacuate Roosevelt Roads to Howard AFB in Panama because of *Inez*, VP-18 continued to fly patrol in the Caribbean. Nearing the end of the patrol, sharp-eyed AX2 S. R. Wilson spotted a huge SOS painted on the superstructure of the *Jane D*. Plane Commander Lt. Dave Crawford made a low pass for recognition. Below, ten men frantically waved their arms.

Since the *Jane D* was obviously in serious trouble, Lt. Crawford regained altitude to find a nearby ship. Twenty miles away, he located the huge tanker, *San Antonio*, out of Delaware. The *Neptune* came in low, rocking its wings. For ten minutes the same "Follow me" technique was repeated without success.

Finally Lt. Crawford nosed the aircraft over into a dive and a very low pass, and, as the *Neptune* crossed the bow of the tanker, the crew started to drop smokes. Finally, the tanker "took the hint" and followed the smoke trail.

The *San Antonio* came alongside the *Jane D* an hour later and took the 110-foot fishing vessel in tow. A converted WW II subchaser, the *Jane D* had been adrift for two weeks. Her store of provisions was dangerously low when she was finally rescued. Her crewmen were treated in Panama and, at last report, were recovering rapidly.

The performance of VP-18's air detachment was noted by ComASWForLant and ComFAirWingsLant. The *Jane D* was the second ship in distress found in two months by VP-18 aircraft.

Another First for VP-10

Patrol Squadron Ten, a unit of Fleet Air Wing Three, recently became the first operational ASW patrol squadron to designate general service radiomen as qualified Combat Aircrewmen in the P-3B *Orion*. During VP-10's recent deployment, 13 RM's reported aboard under an 18-month pilot program to evaluate the effectiveness of RM's in patrol aviation. Within six months, all thirteen received their wings as Combat Aircrewmen.

In the picture above, left to right, are: Commander Karl J. Bernstein, C.O., VP-10, RM1 C. L. Mezie, RM3 A. R. Emelio, RM2 D. A. Scott, RM2 D. E. Clouser, RMSN A. N. Russo, RM2 L. E. Nilsson, RM2 J. C. Szoszorek; back row from left: RM3 D. L. Edwards, RM3 M. T. Conners, RM3 M. P. Ares, RMSN L. J. Mostek, RM3 J. R. Hensley, RM3 D. R. Manning, and Commander John G. Redmond, X. O. of VP-10.

Training 'Down Under'

In mid-autumn, two crews of VP-28's *Hawaiian Warriors* joined forces with crews from VP-8 (Patuxent River, Md.) and VP-19 (Moffett Field, Calif.) to form a USN detachment that participated in a major maritime exercise with units from Australia, New Zealand and the United Kingdom.

At Townsville RAAF Base in northern Australia, flight headquarters were established for coordinated operations with the locally based Maritime Reconnaissance Squadron Number 10, flying SP-2H *Neptunes*, and the RAF Squadron 205 pilots from Singapore, flying their *Shackletons*.

The P-3 detachment flew round-the-clock, antisubmarine missions in support of the fleet in such memorable WW II areas as the Sea of Bismarck and the Coral Sea.

The exercise was the largest peacetime maneuver ever conducted in the history of Australia. The participants included the aircraft carriers HMS *Victorious* and HMAS *Melbourne*, four guided missile frigates, eleven destroyers, seven support ships, several "en-

emy" submarines and scores of fighters, bombers and patrol aircraft.

After ten days in the vicinity of New Guinea and northern Australia, the fleet proceeded southward inside the Barrier Reef. Here VP-19 and VP-28 crews deployed to Richmond RAAF base outside Sydney while one of the VP-8 crews handled the remaining flights from Townsville. Operating with the *Neptune*-equipped RAAF No. 11 Squadron at Richmond was not new for the *Hawaiian Warriors* since they had hosted No. 11 twice within the preceding two years at Barber's Point.

The three-week exercise "down under" ended as 18 of the participating ships steamed into Sydney harbor accompanied by a fly-by.

The highlight of the Australian tour for the USN contingent was when President Johnson stopped at Townsville where he had been stationed briefly as a lieutenant commander in WW II. After a two-hour motorcade in the town, he returned to the RAAF base to resume his flight to Manila. Before boarding Air Force One, he shook hands with Commander Von Schrader and turned to the men and said, "You are doing a fine job down here. I am very proud of you."

Ready for WestPac

VP-46, commanded by Commander A. H. Balch, has been preparing for deployment to the Western Pacific. The squadron is gradually exchanging its P-3A *Orions* for the newer, more powerful P-3B's.

The outfit's aircraft for this deployment are protected from the humid Asian climate with a linear polyurethane paint designed to prevent corrosion which has caused problems for the aircraft flying patrol in the Pacific. This covering was developed by Lockheed after reports on the previously-used epoxy-based paint revealed occasional cracking. VP-46 is to evaluate the new paint.

Tests conducted by Lockheed and the Navy are the basis for equipping the P-3 with the *Bullpup* missile. This weapon will enable the P-3's to attack maneuvering targets from "stand-off" distances.

CAPT. *W. E. Hammett (R), C.O. of Currituck, welcomes VP-50's Cdr. Harlan Purdy.*

AS1 Rewarded for Invention

A modification designed by a VP-31 aviation technician will save the U. S. Navy an estimated $87,000 in the next 12 months.

For his inventive change to an engine accessory, AS1 Ronnie L. Rodeffer has been awarded the squadron's first Incentive Award—a cash bonus of at least $300.

A recommendation for the award followed a survey by a North Island-based representative of the Office of Civilian Manpower Management. Commander George Prassinos, C.O. of VP-31, approved the recommendation and set aside a $300 allotment for Rodeffer from the squadron's Bravo funds.

The modification affects only the Navy's P-5 patrol planes. However, the units Rodeffer's modification will "save" are worth $1,420 each.

Before the change, VP-50's maintenance department reported that two of these $1,420 units "disintegrated in flight" and that, in a single week, five others burned out before the aircraft became airborne.

Such in-flight failures often put one of the P-5's two engines out of commission, forcing the plane to return to base on a single engine.

Rodeffers' modification, which he first designed in December 1965, reduced the temperature value of an electrical coupling on a thermoswitch from 325° F. to 225°. The result proved practically foolproof in three months of intensive midsummer testing; the coupling broke away soon enough upon overheating to prevent "disintegration."

The effectiveness of the modification was so impressive that a ComNavAirPac instruction, issued on August 9, 1966, required that Rodeffer's modification be installed in all P-5 aircraft.

Three of a Kind

Commander J. A. McCaig, VP-49's C.O., drew three of a kind from the BuPers deck. For three months a father and his two sons belonged to the squadron (in the picture below).

In the picture, Commander McCaig is seated with ADRC Walt Malishka and his sons, all members of the Patuxent River squadron.

The three Malishkas were together for three months beginning in September when Thomas reported aboard. The Chief was the first of the three to leave when he transferred in December to the Fleet Reserve. Walter J. leaves this month. Only one remains aboard.

COMMANDER *J. A. McCaig, left, VP-49's C.O., has had three members of one family in the squadron: ADRC Walt Malishka and sons, SN Walter (right) and AN Thomas (left).*

SELECTED AIR RESERVE

Chapel Windows Are Dedicated

A long-held dream of many people was realized when 13 stained-glass windows were dedicated recently in the J. William Ditter Memorial Chapel at NAS Willow Grove. The windows were purchased and installed by Willow Grove personnel and members of the Southeastern Pennsylvania Council of the Navy League.

Chaplains of three faiths participated in the dedication ceremonies. Rear Admiral James W. Kelley, CHC, USN, Chief of Chaplains, U.S. Navy, who delivered the dedicatory address, said, "The windows in your chapel represent the Protestant, Catholic and Jewish Faiths. . . . They indicate how the representatives of these faiths serve not only their God, but how they join together in the service of our great country—on land, on sea and in the air."

Willow Grove's commanding officer is Captain N. R. Charles.

STAINED-*glass windows, memorials to all faiths, dedicated at Willow Grove chapel.*

Annual Military Inspection

Officers and men of 24 squadrons and units of the Naval Air Reserve from New York, Connecticut and New Jersey stood their Annual Military Inspection at NAS New York. Rear Admiral Richard L. Fowler, Chief of Naval Air Reserve Training, conducted the inspection. He was assisted by Rear Admiral Dick H. Guinn, Commander Carrier Division Four.

Fleet Tactical Support Squadron 833, which recently returned from a 14-day active duty training cruise at Barber's Point, received the Annual Military Inspection Trophy. The trophy is presented annually to the NAS New York Reserve Squadron having the best attendance record. Commander Arthur G. Carlson is C.O. of VR-833.

Captain John E. McQuary is head of the air station at New York.

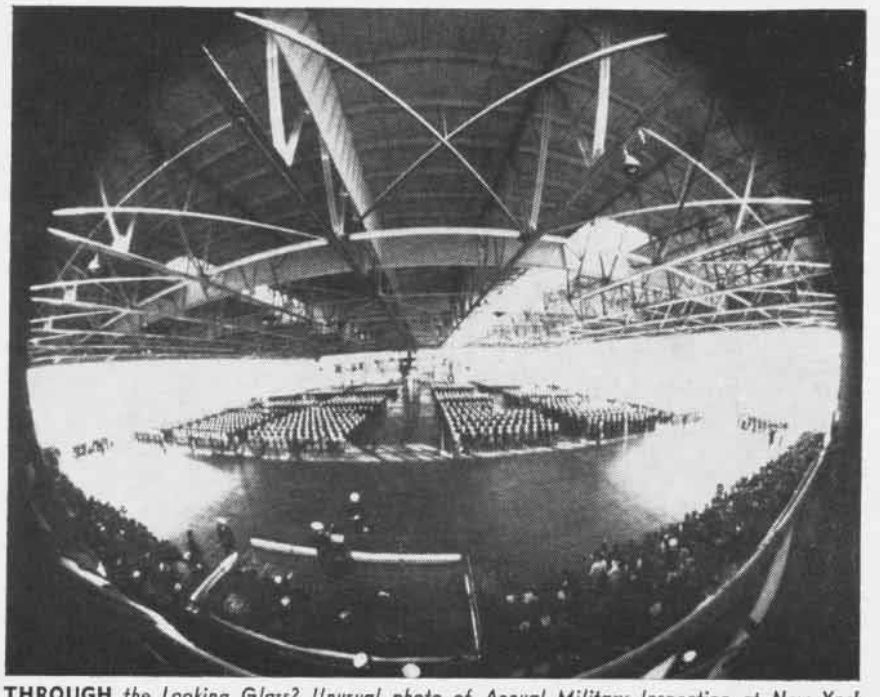
Public Service Award

During the recent Naval Reserve Association's annual convention at Denver, Colo., Captain James R. Conway, a member of Air Wing Staff 72 at NAS Glenview, was awarded the Secretary of the Navy's Distinguished Public Service Award. This is the highest award bestowed on civilians, including Navy and Marine Reservists, who contribute exceptional service to the U.S. Navy.

Captain Conway was cited for his numerous personal contributions that have improved morale, enhanced the public image of the Navy and Marine Corps and created a greater awareness of the importance of seapower.

In 1966, Captain Conway produced, directed and narrated a special documentary film on the Naval Air Reserves' 50th anniversary. He also narrated a Navy-Marine Corps film which tells the story of the Marine Corps' civic actions in Vietnam. At his own expense, he developed a slide presentation, titled, "Operation Rehabilitation."

In civilian life, Captain Conway is a TV announcer for Chicago's WBKB. He devotes a great deal of time to the promotion of Navy recruiting, to educating the public to the need for nuclear-powered Fleets, to live TV reports from NAS Glenview and to special Navy events in the Midwest.



THROUGH *the Looking Glass? Unusual photo of Annual Military Inspection at New York was taken by PH2 Sandy Speiser, AWS-83. Inspection in the hangar involved 2,000 people.*

To Soar Higher

John H. Uelses, who has held the world pole-vaulting record five times and the United States record six times, will soon be soaring higher. In November he became a Naval Aviation Officer Candidate when Captain Carl D. Simonsen, C.O. of NARTU JACKSONVILLE, administered the oath of allegiance to him.

The new Navy man became interested in Naval Aviation while serving with the Marines from 1959-1962. As a Marine, he talked with Navy pilots and made numerous flights as a passenger.

Uelses began his preflight training at NAS PENSACOLA, Florida.

A Clerical Custom

An old South American and European custom was witnessed at NAS OLATHE when Father Frank Horvat, parish priest of the nearby Gardner Catholic Church, blessed the newest addition to Argentina's "Fleet of the Air"—25 A-4 *Skyhawks*—prior to flight. In South American and European fishing villages, the village priest blesses the fishing fleet on its first voyage of the new season and so it was done for the *Skyhawks*.

Father Horvat blessed the Argentine pilots and men who had trained at Olathe during the summer. He then blessed the new aircraft, wishing them Godspeed in the protection of their country.

The *Skyhawks* are rebuilt aircraft purchased from the U.S. by the Argentine Air Force.

TDCS *R. W. Henkel, NAS Seattle, gave a "thumbs up" to his son, Ens. John Henkel, when he toured station's Link trainer. The aviator was en route to duty at NS Midway Island. (Photo courtesy Seattle Times.)*

Brigadier General Rafael A. Gandolfo of Argentina attended the ceremonies. These were filmed for a documentary which will be shown in Argentina.

Captain William F. Culley, station commanding officer, said, "It has been a pleasure to have the Argentine personnel aboard."

ASW Practice

Alameda-based HS-872, a Noel Davis Trophy winner, recently completed two weeks of active duty training at NAS KEY WEST, Fla., as the guest of Carrier Antisubmarine Air Group 50.

This was the first time an Alameda Reserve squadron had taken its annual training at the Florida activity.

Commander D. S. Albright is HS-872's C.O. and Commander A. R. Kreutz is the commanding officer of CVSG-50.

Back to His Beginning

Rear Admiral Stewart W. Hopkins, USNR, who, as a lieutenant, commissioned Air Transport Squadron Seven 23 years ago, returned to the squadron for two weeks of active duty late in 1966. As special naval assistant to the Commander, Military Airlift Command, he toured VR-8's maintenance shops and observed VR-7 in-flight procedures during a trip to Southeast Asia. In civilian life, Admiral Hopkins is senior pilot for Delta Airlines.

Rear Admiral Hopkins commissioned the original VR-7 at Miami, Fla., in April 1943 and became its first commanding officer. The unit was formed to provide air transport service for the Navy in the Caribbean and in South America. At that time the squadron flew the R4D *Skytrain*.

A 1930 graduate of Navy Flight Training, Admiral Hopkins served as a fighter pilot aboard the old USS *Lexington* until 1932 when he returned to inactive duty.

Recalled to active duty with the outbreak of WW II, Admiral Hopkins piloted the first flight of the Naval Air Transport Service. He took command of Air Transport Squadron Three in 1944.

The original VR-7 was decommissioned in June 1946. The present squadron, commissioned as a unit of MAC in June 1953, will be decommissioned this month.

REAR ADMIRAL *Richard L. Fowler, CNAResTra, and Captain N. R. Charles, C.O. of Willow Grove, inspect the "station-keepers."*

DURING AMI *at NAS Olathe, Rear Admiral Fowler took time to inspect another type activity—Cub Scout Troop 3284, Shawnee, Kans.*

AT SEA WITH THE CARRIERS

RANGER, HERE LEAVING PEARL HARBOR, HAWAII, HAS A NEW HOME PORT

PACIFIC FLEET

RANGER (CVA-61)

Ranger moved into dry dock at the naval shipyard in Bremerton, Wash., to begin a major, eight-month overhaul. Bremerton is CVA-61's new home port; she arrived after a month-long stay at her former "home," Alameda, Calif.

When the big CVA pulled into Bremerton, her flight deck looked like a parking lot. Cars belonging to crew members were loaded aboard for the transit.

Captain William E. Donnelly, Jr., relieved Captain W. M. Harnish as *Ranger's* C.O. during ceremonies held aboard the ship.

BON HOMME RICHARD (CVA-31)

A senior Austrian military official, in the U.S. to inspect American aircraft, was a guest aboard *Bonnie Dick* for a tour and dinner while the ship was in the Long Beach Naval Shipyard.

Brigadier Walter Muhlbacher, Chief of the Aviation Section in the Austrian Defense Department's Office of Military Technology, was piped aboard the carrier. He was accompanied by Colonel Doctor John Sigmund, a staff member of the Austrian Ministry of Defense, and LCol. Josef Almer, an advisor to the Austrian Air Force's technology director.

Bonnie Dick's crew's mess was open for business for the first time in six months after extensive modernization work was completed. Captain G. F. Colleran, the ship's C.O., officiated at a ribbon-cutting ceremony.

Bonnie Dick was scheduled to return to home port, San Diego, after completion of an eight-month overhaul in Long Beach.

IWO JIMA (LPH-2)

The Seventh Fleet Amphibious Ready Group, with *Iwo Jima* as an integral unit, landed the Third Battalion of the Third Marine Division south of the demilitarized zone that separates North and South Vietnam.

Ships comprising the Amphibious Ready Group had been cruising off the coast of Vietnam, with their embarked Marines designated a contingency force ready to be landed on short notice, when word came the Marines were needed to support Operation *Prairie.*

Ships besides *Iwo Jima* in the ready group included USS *Vancouver* and USS *Thomaston.*

BENNINGTON (CVS-20)

Early in 1946, two young Naval Aviators left San Diego for Hawaii aboard *Bennington* for an extended deployment. Last week, after 20 years, they again landed aboard *Big Benn*—this time in the ship's

ABOARD IWO JIMA, LPH CREWMEN ENTERTAIN MARINES IN SICK BAY

C-1A *Trader*, the COD aircraft.

Commanders Benjamin B. Fowke and M. L. Reynolds led a "fly-on" of ship's aircraft as *Benn* left home port, Long Beach, for a WestPac deployment. They had not served together for years, but they renewed old acquaintance when Commander Reynolds reported aboard *Benn* as air operations officer on the staff of ComASWGru One and discovered his shipboard counterpart was Commander Fowke.

So, for old time's sake—and probably to prove to each other they are still "hot" pilots after 20 years—they teamed up to bring the COD plane aboard.

SN Ralph L. Miller, a *Bennington* crew member, has become the first recipient of the *Eagle Eye Award* presented by Rear Admiral E. P. Aurand, ComASWGru One.

The award is one of six unique —and all very originally named —awards created and instituted by Rear Admiral Aurand as an extra stimulus to crewmen of ships and aircraft under his command in performing their duties.

Miller received the award just before *Bennington* deployed from Long Beach to WestPac. He earned the honor by sighting a submarine periscope during a recent ASW exercise.

What are the names of the rest of Rear Admiral Aurand's trophies? They include the *Golden Ear*, presented for the initial sonar contact, passive or active, that develops into a positive submarine; the *Gold Screw*, for the kind of outstanding achievement that would contribute to a submariner requesting some other kind of duty; the *Big Heart*, given for a "nice try," courage or a benevolent act; the *Good Head*, for the best headwork during at-sea operations; and, finally, the *Nose That Knows*, awarded for the initial radar, ECM or *Sniffer* contact that develops into a positive submarine.

ENTERPRISE (CVAN-65)

Two of the Navy's four nuclear-powered surface ships—*Enterprise* and the guided missile frigate USS *Bainbridge*—were participants in the fourth major First Fleet exercise of 1966, *Base Line II*. The exercise was scheduled by Vice Admiral B. F. Roeder, ComFirstFlt, who was in over-all command of 35 participating ships and 31 air units involved.

Rear Admiral M. F. Weisner, ComCarDiv One in the carrier *Kitty Hawk*, was in command of "friendly" forces. Rear Admiral H. L. Harty, ComASWGru Three in the CVS *Yorktown*, led an ASW HUK group.

Aircraft from the carriers conducted live rocket and bomb runs in the San Clemente Island and Chocolate Mountain bombing ranges. They also provided aerial reconnaissance. Surface-to-air and air-to-air missiles were fired at target drones in the Pacific Missile Range. The seagoing units also had to defend themselves against attacks by "opposition" aircraft.

Two professional artists, Howard D. Clapp and James F. Gill, visited Enterprise to obtain sketches and drawings before they began work on paintings for the Navy's Combat Art program. The artists watched and sketched flight deck operations, destroyer refueling and other phases of shipboard activity during their stay.

CONSTELLATION (CVA-64)

Popular TV star Martha Raye put on a special show for *Connie* crewmen as they celebrated their carrier's fifth "birthday" while the CVA was operating off the coast of Vietnam.

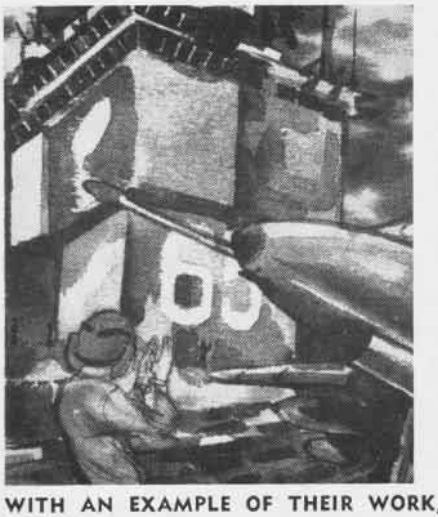
Because of the carrier's heavy operating schedule, it looked for a time as if there would be no party marking the fifth anniversary of the ship's commissioning. But then Miss Raye, who has toured the battle zone before to provide much-appreciated entertainment for soldiers, sailors and Marines alike, flew in from Saigon.

Within three hours after her arrival, a stage was erected on the hangar deck, the crew was notified and Miss Raye was performing before a packed house. She also put on a show for crewmen in sick bay.

CORAL SEA (CVA-43)

Commander Duff Arnold was "given the bird" recently aboard *Coral Sea*—but he's not putting anybody on report about it.

During a change-of-command ceremony, Commander Arnold re-



WITH AN EXAMPLE OF THEIR WORK, SHOWN AT LEFT, CIVILIAN ARTISTS TALK WITH ENTERPRISE'S SKIPPER

lieved Commander Ernie Shorz as skipper of VA-22, an A-4 *Skyhawk* squadron embarked in the ship.

VA-22 pilots carry the nickname *Fighting Redcocks,* and when the squadron's mascot—you guessed it; it's a rooster—was presented to Commander Arnold, he said, "I consider it an honor to be given the bird."

There is no record of what the rooster had to say.

F. D. ROOSEVELT (CVA-42)

Normal flight operations against targets in Vietnam continued off *FDR* despite a small but intense fire that claimed eight lives. The fire flashed up from storerooms five decks below the ship's after hangar bay, where storekeepers were almost through lowering a sizable amount of hydraulic fluid and paint into the spaces.

The men who died were putting the stacks of material into place as they came down from the hangar bay by winch and nets.

Smoke spewed up through the well-type hatch into the hangar bay when the fire broke out. Quick action by fire-fighting teams kept the blaze confined to a small area and prevented large quantities of highly flammable hydraulic fluid and paint from exploding.

Admiral David L. McDonald, Chief of Naval Operations, was an overnight guest in *FDR* when he and members of his party visited the carrier while the CVA operated off Vietnam. Admiral McDonald was on a tour of Navy units in the Western Pacific.

Accompanying CNO were Vice Admiral B. J. Semmes, Chief of Naval Personnel; Vice Admiral I. J. Galantin, Chief of Naval Material; Rear Admiral G. E. Moore II, Deputy Commander for Supply Operations, Naval Supply Systems Command; and Rear Admiral M. W. Cagle, Director of the Aviation Programs Division, Office of DCNO (Air), a former skipper of *FDR.*

A visitor of another type boarded *FDR* when Martha Raye showed up to perform for crewmen.

CVA-42's 155,000th arrested landing was made by Ens. Paul L. Worrell, flying an A-4C *Skyhawk* assigned to his squadron, VA-172.

SAFETY AWARD TO VF-213'S C.O.

REUNION IN A BENNINGTON COD

HORNET (CVS-12)

When a mobile unit of the Los Angeles Blood Bank visited *Hornet* during a recent blood drive, 223 crewmen were on hand to donate. *Hornet* was in an upkeep period at the Long Beach Naval Shipyard after returning from duty as prime recovery ship for an unmanned *Apollo-Saturn* shot.

INTREPID (CVS-11)

A VA-176 pilot, flying a propeller-driven A-1H *Skyraider* off *Intrepid,* shot down a MiG jet fighter with a burst of 20mm cannon fire after some of his squadron mates were attacked during a search for a downed flyer south of Hanoi.

Ltjg. William T. Patton was escorting a rescue helicopter to the area where the pilot went down when he received reports that MiG's were in the area. He was able to "jump" one for a kill. Another VA-176 pilot, Ltjg. James W. Wiley, scored a probable kill on the same mission.

The *Fighting I's* catapult crews are at it again. They say the 23 A-4B *Skyhawks* they launched at 26-second intervals recently beats their own claimed record of 28 seconds, set last May.

ORISKANY (CVA-34)

The *Mighty O* entered the harbor at San Diego and tied up at the NAS North Island carrier pier on November 16. This concluded her eighth regular deployment with the Seventh Fleet in the Far East.

Although this last cruise was prematurely terminated owing to the tragic fire which occurred while the ship was operating off North Vietnam, it was only ten days short of a full six months. Even so, she had spent more time "on the line" than her schedule called for, amassing a total of 142 days at sea while steaming 75,000 miles.

Oriskany's combat-experienced, repeatedly decorated Carrier Air Wing 16 pilots flew a total of 7,974 combat sorties. In the process they dropped 6,272 tons of ordnance on communist targets.

When *Oriskany's* combat operations in the Gulf of Tonkin were interrupted on October 26, she retired to Subic Bay for minor repairs before departing for her home port. After a short stay in San Diego, the *Big O* departed for Hunter's Point where she is undergoing extensive repairs to restore her "combat readiness."

KITTY HAWK (CVA-63)

Kitty Hawk crewmen have earned the right to wear the Navy Unit Commendation Medal for their performance during the ship's last combat tour off Vietnam. Authorized by the Secretary of the Navy, the award was presented to the ship during ceremonies aboard by Vice Admiral Thomas F. Connolly, then ComNavAirPac, while the CVA was berthed at North Island.

VF-213 was awarded the Naval Aviation Safety Plaque in ceremonies in the squadron's ready room aboard *Kitty Hawk.* Captain

S. W. Vejtasa, ComFAir Alameda, presented the plaque to Commander James W. Wilson, VF-213 C.O., on behalf of CNO. It was given to the squadron for having the most outstanding safety record of any PacFlt VF squadron during the 1966 fiscal year.

HANCOCK (CVA-19)

Hancock returned to home port, Alameda, after an upkeep period at the Hunter's Point Naval Shipyard in nearby San Francisco. The ship is commanded by Captain James Donaldson, Jr., who recently received the Legion of Merit for outstanding service as skipper of the CVA during the ship's latest tour in the combat zone.

TICONDEROGA (CVA-14)

Tico has departed home port, San Diego, for her eighth WestPac cruise and her third tour in the waters off Vietnam. *Tico* planes were among those launched on the first responsive strikes against North Vietnam in August 1964.

TRIPOLI (LPH-10)

Tripoli, the Navy's newest LPH, was scheduled to steam to her new home port, San Diego, when fitting-out was completed at the Philadelphia Naval Shipyard. *Tripoli* C.O. is Capt. Henry Suerstedt, Jr.

ATLANTIC FLEET

AMERICA (CVA-66)

Rear Admiral Harvey P. Lanham relieved Rear Admiral James O. Cobb as ComCarDiv Two during a ceremony aboard *America* while the carrier was in Norfolk.

FORRESTAL (CVA-59)

For the first time in seven months, *Forrestal's* boilers were "fired off" as completion date neared for an overhaul at the Norfolk Naval Shipyard.

RANDOLPH (CVS-15)

While their ship was undergoing a two-month overhaul at the Boston Naval Shipyard, *Randolph* crew members celebrated the 22nd anniversary of the CVS's commissioning.

SARATOGA (CVA-60)

After steaming 43,000 miles and completing a seven-month commitment with the Sixth Fleet and NATO in the Eastern Mediterranean, *Saratoga* has returned to home port, Mayport, Fla.

Returning with the carrier from her seventh Med cruise was embarked CVW-3, with squadrons from Cecil Field and Sanford, Fla., and Oceana, Va.

During the deployment, *Sara* sailors visited the islands of Malta, Rhodes and Palma. Other ports-of-call included Thessaloniki and Athens, Greece; Genoa, Taranto and Naples, Italy; Palermo, Sicily; and Barcelona, Spain. Some 10,000 arrested landings were made during underway operations, bringing the ship's total since commissioning to 115,000.

Sara returned under a new C.O. Captain Joseph Tully relieved Captain Harold Lang during a ceremony while the ship was anchored off Palma.

SHANGRI LA (CVA-38)

Another carrier with a new skipper is *Shangri La*. Captain Hope Strong, Jr., relieved Captain A. W. Elliott, Jr.

Ltjg. Victor Riley, VF-62, made *Shang's* 78,000th arrestment in an F-8D *Crusader* while the CVA was operating off Spain.

INDEPENDENCE (CVA-62)

Vice Admiral C. T. Booth, ComNavAirLant, and several members of his staff flew aboard *Independence* for a short visit while the carrier was operating in the eastern Mediterranean.

Marine Attack Squadron 324, serving aboard *Independence*, received the CNO Aviation Safety Award in a shipboard ceremony.

OPERATING IN THE MEDITERRANEAN WITH THE SIXTH FLEET, INDEPENDENCE WAS HOST TO COMNAVAIRLANT

MEN WHO MAKE 'MAIL CALL' POSSIBLE

THE WORDS "Mail Call" have special meaning for virtually every man who has ever served aboard a Navy ship—and those who make up the crew of the carrier *Constellation* are no exception.

This is especially true when your ship is steaming in foreign waters on a lengthy deployment, as *Connie* was 'till just recently. It seldom matters what form the mail takes: "Mail Call" may bring a letter from San Diego, or a box of slightly-crumbled cookies from Chicago, or a birthday gift from Atlanta, or even a newspaper from Houston.

Just so it brings *something*.

For 11 *Connie* crewmen who serve as ship's postal clerks and who run her Post Office, "Mail Call" is just one aspect of a many-faceted job.

CONNIE *postal clerk DeWayne Smith waits on the flight deck for incoming COD plane.*

THESE are the men who keep mail moving between *Constellation's* flight deck and her crew—and also to Navy men in other ships and "the folks back home."

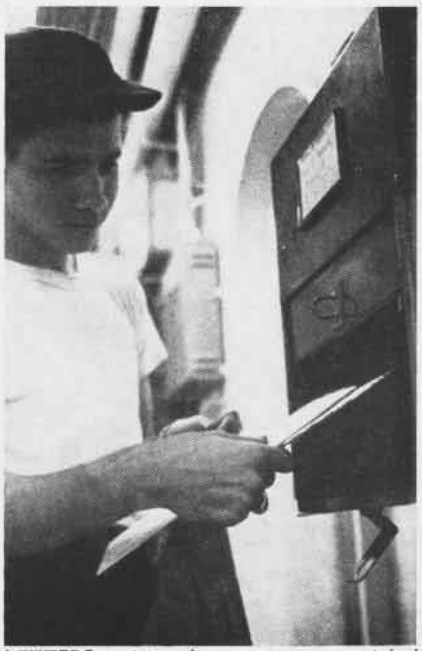
It's a big chore. Ask the man in charge of *Connie's* Post Office, PC1 DeWayne L. Smith.

"Two to three thousand pounds of mail are flown aboard this ship by Carrier On-Board Delivery (COD) planes on an average day at sea," he says. "About half the mail is made up of packages, the other half of letters. We handle almost 32,000 letters a day—but about half of them are transferred to other ships in company with us."

Mail planes flying to *Connie* come from NAS CUBI POINT in the

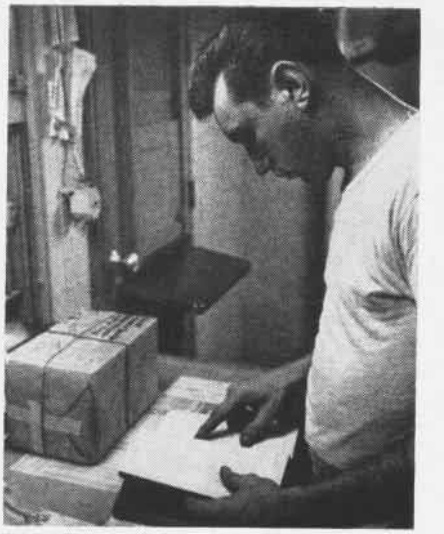
ON THE WAY *to Connie's Post Office, mail rests on the shoulder of PC2 Fred Bolten.*

POSTAL *clerks, working in the hot sun as their ship steams off Vietnam, stack mail as it is offloaded from a COD plane that just arrived from the Philippine Islands.*



LETTERS *written by crewmen are picked up by postal clerk striker, Ernest Barnes.*

SORTING *letters that have arrived aboard Constellation, PC1 Donald Owens makes certain the mail gets to the right slot. When sorting is completed, "Mail Call" goes.*



PARCEL *post packages cost money to mail, even off Vietnam. Habzansky checks rate.*

Philippines (see page 18). Usually, one man from the ship's Post Office stays at Cubi to help sort the mail and get it on the aircraft.

When a mail-laden COD plane reaches *Connie*, the postal clerks move in a hurry. "When the mail arrives, we've got to get it off the deck quickly so the other planes can go back to their operations," Smith explains.

Mail is given a quick check before intensive sorting begins; that destined for other ships is locked in a room to await their arrival in the operating area.

The rest of the mail is hurried through *Connie's* myriad passageways to the Post Office, where it is sorted. Arrival slips must be prepared for registered letters and insured packages.

When everything is ready, Smith asks the officer-of-the-deck to have "Mail Call" passed, and division mail orderlies converge on the Post Office. They distribute mail, in turn, to the crew.

EVEN WHILE mail is being sorted, two of the ship's postal clerks continue another facet of the job at hand: They sell money orders and stamps.

From May 12, when the *Constellation* left San Diego, until the end of November when she was almost home, her postal clerks sold $1,927,695.77 worth of money orders and $44,789.50 worth of

Story and Photographs by JO2 Tony Boom

stamps, according to PC1 Smith.

Most of the stamps have been sold for mailing parcels, since servicemen in the combat zone may send postcards and personal letters postage-free.

Mail that is bound for other ships, the batch that is locked away until it can be delivered, accounts for quite a bundle. "We keep mail for 20 to 30 ships, ranging from submarines to other carriers," Smith points out. "It's transferred by helicopter or highline when the ships are near."

Connie's postal clerks must be aware of the operating schedule of all ships in the area, so they can transfer mail to the right ship at the right time—say, to an ammunition ship for further transfer to a destroyer three days later.

Constellation also receives surface mail from other ships, usually items consisting of parcel post packages, newspapers and magazines. "The Post Office must be manned 24 hours a day to keep up with the constant flow of mail," Smith says.

Getting mail off the ship is just as important as getting it aboard. *Constellation* crewmen alone sent 162,968 pounds of mail off their carrier in the six months of their WestPac cruise. Still more was sent off for other 7th Fleet ships.

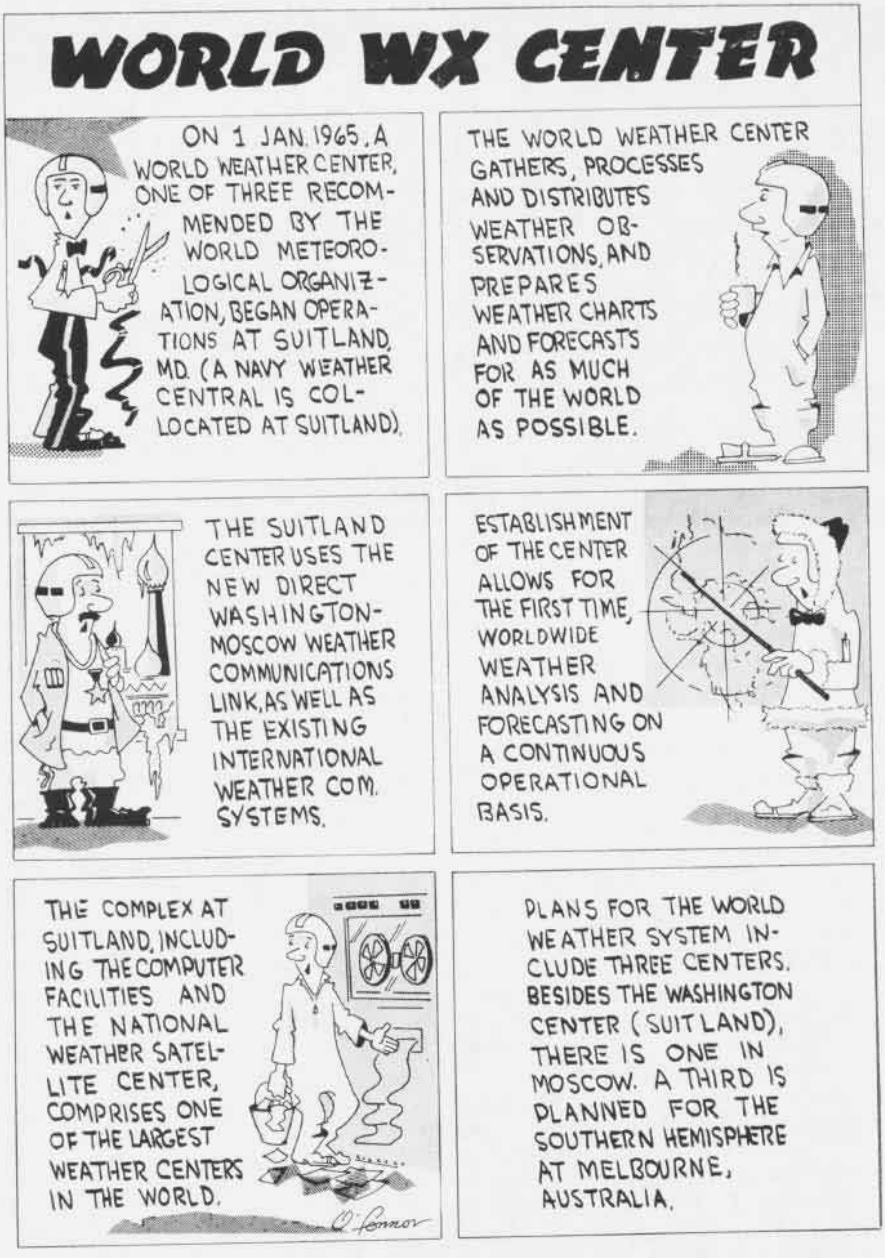
Connie postal clerks get their own ship's outgoing mail from 16 boxes located throughout the carrier. They pick up letters from these boxes three times a day and, in addition, collect still more letters and packages at the Post Office "business window." What's collected is added to that received from other ships and placed aboard outbound COD flights, usually once a day.

DESPITE the fast tempo of operations, *Connie's* postal clerks always have time to appreciate the personal touches involved in handling the mail.

Just after the cruise started, for instance, a *Connie* crewman received a big birthday cake all the way from Chula Vista, Calif., 6,000 miles away—and not a crumb or a corner of that cake was out of place.

Because the cake had obviously been hand-carried by every postal type who came in contact with it, Smith arranged for *Connie's* commanding officer, Captain William D. Houser, to present the cake to its recipient with appropriate ceremony.

How did postal authorities all the way from Chula Vista to *Constellation* know the contents of that particular package warranted the delicate touch? Simple. It was mailed in a clear plastic, "see-through" box.



Cloud Build-ups are Studied

Statistics Gathered in Australia

A Navy team of military personnel and civilian scientists, headed by R. E. Ruskin of the Naval Research Laboratory (NRL), has completed a 22,000-mile, round-trip flight to Australia to gather atmospheric data.

The flight, which originated at NAS Patuxent River, Md., was made in a Navy *Super Constellation* instrumented for atmospheric measurements. Cdr. A. V. McPhillips was aircraft commander.

While in Australia, the scientists from the Ocean Sciences and Engineering Division of NRL carried out cooperative studies with the world-renowned cloud physics group of the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Sydney.

Scientific instruments, most of which were developed by NRL, measured such cloud parameters as water content, amount of ice, size of particles, temperature and humidity of atmosphere and various types of condensation nuclei. The NRL instruments were used in conjunction with those developed by the Australian group to gather data on cloud nuclei and droplet concentration and sizes. These measurements, combined with other experiments to determine the source, composition and role of the nuclei, may provide important steps toward improved weather prediction and possible modification of fog and clouds.

In addition to these studies, NRL scientist R. V. Anderson made measurements of the electrical field and conductivity of the atmosphere at various longitudes and thereby obtained information on the variations in the atmospheric electric current.

The atmospheric electricity measurements, it is hoped, will provide a better understanding of the diurnal cycle of the atmospheric electric field, especially as to how the cycle, which is related to weather, will vary with longitude.

This marks the first time that such measurements have been taken above man-made contaminants on the earth's surface over such a great range of longitude.

Antarctic Penguins Arrive

Hercules Airlifts 47 to New York

Forty-four Adelie and three Emperor penguins were recently airlifted from Antarctica to New York by a MAC C-130 *Hercules* attached to Naval Air Transport Wing, Pacific Unit. They will be used in natural science studies sponsored jointly by the New York Zoological Society and Rockefeller University.

The 47 penguins made the three-day, 12,000-mile trip comfortably in the 50° F. temperature of the cargo portion of the *Hercules*. Air-conditioning units were provided at each stop to maintain this temperature. In temperatures above 50° F., penguins go into a state of shock and die. In New York, they will be housed in special facilities at a zoo.

Previous experiments carried out in Antarctica from 1962 through 1965 show that Adelie penguins use the sun as a compass when they are released in unfamiliar flat areas, hundreds of miles from home.

This research is funded by the National Science Foundation.

PERSONAL GLIMPSES

Editor's Corner

THE TIME HOWGOZIT. Men have analyzed an average life of 70 years and statistics divide the years in this way:

Four years would be spent in education,
Six years at the dinner table,
Eight years in amusements,
Five years in transportation,
Five years in conversation,
14 years in work,
Three years in reading and
25 years in sleeping.

"If you went to Chapel every Sunday and prayed for five minutes every morning and evening, you would be giving five months to God, five months out of 70 years of your life." (From CinCLantFlt Chaplain's *Newsletter*, quoted in the *Quonset Scout.*)

Tender for the Air Force? The USS *Currituck*, a seaplane tender usually employed as a home base by Navy seaplane squadrons, had its first U.S. Air Force customer recently. Operating out of Buckner Bay, Okinawa, the *Currituck* was on the spot when an Air Force amphibian HU-16B, used in search and rescue operations, lost an engine on a water takeoff. The HU-16B was hoisted aboard for an engine change, then sent on its way back to its shore base at Naha Air Force Base, Okinawa. *Currituck* had satisfied the new customer.

OLD HOME WEEK. How often do you meet old friends while fighting a war? Marine Capt. Richard Caramanno, a pilot, and SSgt. C. G. Ambrose, an aerial gunner, were talking at their squadron HQ near Chu Lai, Vietnam, and discovered they had mutual friends in their mutual home town of Scranton, Pa. They had lived within blocks of each other but had never met until Vietnam. Now the sergeant flies as gunner with helicopter pilot Caramanno.

Another hometown meeting takes place frequently in the skies over the South China Sea. LCdr. Robert Jackson pilots a VAH-8 A-3 *Skywarrior* as an aerial tanker from the USS *Constellation*. One of his frequent "customers" is LCdr. Robert Owens, an A-6A *Intruder* pilot with VA-65. The two Naval Aviators grew up on the same block in Tullahoma, Tenn. What makes the world seem even smaller is the fact that VAH-8 is based at NAS Whidbey Island, Wash., while VA-65 calls NAS Oceana, Va., its home.

ARMED IN SOUTH CHINA SEA WITH BOMB NAMED FOR THEIR HOME TOWN

Many Meals, Many Mouths. When Second Class Commissaryman Theodore Cordes retired "on 20" at NAS NEW ORLEANS recently, someone figured out, without the aid of a computer, that he had served "enough meals to feed almost every person in the City of Chicago." It was estimated that he had planned or provided food for 3,000 meals each week, 156,000 per year, 3,120,000 in 20 years.

MAIL, PHOTOS, READING. According to a poll conducted by nine Vietnam-based USO's, mail from home still rates highest in priority among the gifts wanted by men in the fighting area. Second in popularity are photographs from family and sweethearts. Third on the list are reading materials of all kinds, including newspapers, magazines and paperbacks (Lockheed-Georgia's *Southern Star*).

Microminiaturized Heartbeats. Clifford Phipps, an electronic engineer at the Naval Missile Center, Point Mugu, Calif., has come up with a ten-channel data recording system that can be strapped to a pilot's leg in flight to record his reactions to missile-firing tests. The recorder, which measures 3x6x9 inches, carries enough tape to record an electrocardiogram, respiration rate, temperature, voice transmissions, brain waves which indicate fatigue or sleep, and three dimensions of heart action. Various sensors are attached to the pilot's skin for transmission of data. Fabricated by a team of Pacific Missile Range engineers to meet Phipps' requirements, the device is being used by F-4 pilots conducting various Navy tests. "In testing the whole weapon system," said Phipps, "it is important to know how man reacts, too." Operated at altitude by battery power within the small case, the recorder may be played back later.

TURKEY SUBMARINES. Credit Naval Support Activity, Naples, Italy, with a new idea for spicing up the Thanksgiving season. According to the command's newspaper, *Panorama*, the AF South Aqua Club sponsored its "first underwater Turkey Shoot." (Apparently contestants would shoot at targets with spear guns while underwater in a swimming pool.)

First prize was a turkey, second, a duck and third, a chicken.

LETTERS

Beneficial Suggestion

SIRS: I am compelled to write you after reading an article in your October issue of NANEWS (Grampaw Pettibone: *Triple Jeopardy*) in which an F-4 driver wiped out his landing gear on a mound (or ditch) a few feet short of the runway in a landing attempt. The article describes the subsequent landing attempts very succinctly, but fails to pinpoint the original culprit in this fiasco.

For years I have held the conviction that our runway underruns, overruns and adjacent areas are too often booby-trapped by temporary obstructions. Lives and overhaul dollars would be saved if the pilots who do make a crash landing or an aborted takeoff can ride a skidding plane to a halt without crashing into a parked aircraft, tow tractor, derrick or drainage ditch. Let's give all aviators, and particularly the ones having trouble in landing or takeoff, an extra break by eliminating these booby traps.

I understand the British are experimenting with pea gravel or coarse sand overruns for stopping aircraft safely that overshoot their runways. They must have heard of the runaway-truck-without-brakes "turn outs" on Highway 99 in the Tehachapi Mountains north of Los Angeles. Is there something here we could adapt for our airfields?

PAUL A. HOLMBERG, REAR ADMIRAL
Naval Air Systems Command
Representative, Pacific
NAS North Island
San Diego, Calif. 92135

Faster Still

SIRS: In response to a story in your October 1966 issue of NANEWS concerning the Marine KC-130 *Hercules* which set the speed record between Atsugi, Japan, and MCAS EL TORO, Calif., with a flight time of 15.9 hours, it should be noted that two similar flights have been made in less time by C-130E crews from Air Transport Squadron 22.

Lt. A. Price flew from Tachikawa AB, Japan, to Norton AFB, Calif., a distance of 4,854 miles in 14.8 hours. The current record-holder is LCdr. P. E. Sturdevant who flew from Tachikawa to NAS MOFFETT FIELD, Calif., in 12.9 hours on January 8, 1966. His flight covered 4,520 miles at altitudes of 21,000 to 27,000 feet; tail winds exceeded 220 knots and maximum speed approached 500 knots. The C-130E burned 40,000 pounds of its 63,000-pound fuel load. This is less than that required to fly from California to Hawaii.

CHARLES D. WEBB, CAPTAIN, USN
Commanding Officer
Air Transport Squadron 22

We Stand Corrected

Sirs: In your October 1966 issue, you printed an article on page 2 regarding the participation of Naval Air Transport Wing, Pacific, in *Deep Freeze* '67. An error occurred in the listing of the units attached to the Military Airlift Command. The article mentioned VR-7, VR-8 and VR-9. Actually, the Naval Air Transport Wing, Pacific, consists of VR-7, VR-8 and VR-22.

VR-7 and VR-22 are the Wing's operating squadrons and VR-8 handles the maintenance responsibility for the 32 C-130E *Hercules* aircraft. VR-22, as well as VR-7, has been repeatedly commended by the USAF's Military Airlift Command for its outstanding contribution to the MAC airlift capability.

Your outstanding publication is always enjoyed by all members of this command.

SAM E. CLARK, CAPTAIN, USN
Commander
Naval Air Transport Wing, Pacific

¶ Naval Aviation News acknowledges the error—and appreciates the compliment.

FDR's Challenge

SIRS: Returning from a combat mission over North Vietnam on October 29, 1966, Lt. Larry Barringer, VA-12, made his 400th landing on *Franklin D. Roosevelt*.

This is a remarkable record for a *first tour* pilot. We would like to challenge any other squadron to come up with a first tour pilot who has trapped more than 400 times on one ship.

In addition to being a quadruple centurion on the *FDR*, Lt. Barringer is also a night centurion aboard this ship.

FRANK A. ESCOBAR
Public Affairs Officer
USS *Franklin D. Roosevelt* (CVA-42)

NAEC Scientist Dead at 66

Originated Unique Smoke Tunnel

Dr. Friedrich O. Ringleb, Chief Scientist of the Naval Air Engineering Center at Philadelphia, died Nov. 20, 1966.

A German by birth, he assisted in the development of Germany's famed Messerschmitt airplanes, serving the Messerschmitt Aircraft Company from 1939 through 1945. It was there he engaged in the development of the first rocket airplane, the ME-163.

His service with the U.S. government began in 1945 when he was assigned to the U.S. Air Documents Center in London. He became a scientist with the Navy in 1946 and became Chief Scientist of NAEC in 1965. His 20 years of service were signalled in May 1966 when he received Navy's Award for Distinguished Achievement in Science.

His work reached its peak with the design and construction of a three-dimensional smoke tunnel for simulating airflows and vortices around and over the flight decks of aircraft carriers. By use of the tunnel, basic techniques were established for qualitative analysis of airstream flow over carrier decks in order to pinpoint causes contributing to air turbulence in the landing area. As a result, ship designs were recently changed to improve the environment of launching and landing aircraft, thus increasing operational capabilities as well as safety factors.

Outfit Shines at Yuma

VMFA-513 Breaks Time Record

During its deployment to MCAS YUMA, VMFA-513 claims to have broken the single-month, flight-hour record for a Marine F-4B squadron in the U.S.

The squadron, home-based at MCAS CHERRY POINT, logged 820.3 flight hours in the month of October and 818 during the three-week deployment that ended November 7, 1966. The *Flying Nightmares* flew an average of 43 hours and 23 sorties a day. Each pilot averaged 19 sorties during the three weeks.

NAVAL AVIATION FILMS

Among the latest motion picture films released by the Film Distribution Division, U.S. Naval Photographic Center, the following should prove of particular interest to personnel in Naval Aviation:

MN-10003C (unclassified) *Naval Aviation Safety Program—The Oblong Window*. The story behind the statistics of aircraft accidents. Going through the windows of punched data cards, the viewer sees how accidents begin—and end. 21 minutes.

MH-10278E (unclassified) *On Target*. Role of the U.S. Marine Corps. Fixed-wing aircraft in Vietnam. Resupply and close air strikes in support of Marine ground forces in combat. 15 minutes.

MN-10286 (unclassified) *Trouble Shooting Aircraft Hydraulic Systems*. Seven steps to take in trouble shooting any aircraft hydraulic system. 20 minutes.

Instructions for obtaining prints of newly released films are contained in OpNav Instruction 1151.1D.

SQUADRON INSIGNIA

Patrol Squadron 26, based at NAS Brunswick, Me., is currently on a six-month split deployment to Argentia, Newfoundland, and Keflavik, Iceland. On this deployment, VP-26's mission includes surveying the world's newest volcanic island, Syrtlindur (above), in the 'Land of Frost and Fire,' Iceland. The Tridents, led by Commander Karl F. Cook, fly the newest Orion, the P-3B.

THE TYPICAL RECRUIT . . .

. . . is energetic, quick, individual and impatient. His background is physically softer than the one his father grew up in; on the other hand, he tends to be better educated. He is versatile and adapts readily to a mechanized environment. He is interested in strange places, tolerant of foreign peoples and generous to them and their children. He knows he is well-informed and is both trusting and skeptical, suspicious of the brass, and as accomplished a griper as his father ever was. He is good-natured most of the time and would rather use up firepower than manpower in taking an objective. He does not like to be pushed around or to see others pushed around. When aroused, he is tough, resourceful and tenacious. Above all, he is a confident fighter, confident that he is well trained, that he fights for a nation whose cause is worthy and that his nation supports him. . . . I am convinced that, all in all, our young fighting men today are better than any we have ever produced in the past. We have every reason to be proud of them. They prove themselves on the battlefield.

General Earle G. Wheeler, USA
Chairman, Joint Chiefs of Staff

NAVAL AVIATION NEWS